BEFORE THE GEORGIA TAX TRIBUNAL
STATE OF GEORGIA

T-MOBILE SOUTH, LLC,	*	
	*	
Petitioner,	*	
	*	**DOCKET NOs. 1732418**
v.	*	**(Consolidated) 1800700**
	*	
DAVID M. CURRY, in his official capacity as Commissioner, Georgia Department of Revenue,[1]	*	
	*	
Respondent.	*	

FINAL DECISION

I. Introduction

This matter is before the Tribunal from an action brought by Petitioner, T-Mobile South, LLC ("T-Mobile" or "Petitioner") against the Commissioner of the Georgia Department of Revenue ("Department" or "Respondent") to recover Georgia Sales and Use Taxes paid in years 2012 through 2016. Specifically, T-Mobile, undisputedly a qualifying high-technology company, contends that it is entitled to an exemption under O.C.G.A. § 48-8-3(68) ("the high-tech exemption," "exemption," or "statute") on the basis that the telecommunication equipment that it purchased qualifies as "computer equipment," the equipment exceeds the required $15 million purchase threshold, and is not otherwise excluded from the exemption because the equipment is not "telephone central office equipment or other voice data transport technology." See O.C.G.A. § 48-8-3(68)(C). After a four-day trial, post-trial briefs and replies thereto, the Tribunal finds,

[1] At the filing of this case, Ms. Lynette T. Riley served as Revenue Commissioner of the State of Georgia; she has since been succeeded by Mr. David. M. Curry.

after careful consideration, that T-Mobile has met its burden of proof to show that the equipment claimed qualifies for the high-tech exemption.

For the reasons stated below, the Department's decision to deny T-Mobile's 2012, 2013, 2014, 2015, and 2016 refund claims, totaling $11,421,436.54, is hereby **REVERSED**.[2]

II. Procedural History

T-Mobile timely filed its petition appealing the Department's 2012 refund claim denial to the Tribunal on April 14, 2017 and timely filed its petition appealing the 2013, 2014, 2015, and 2016 refund claims (collectively, the "refund claims") denials to the Tribunal on July 11, 2017.

The parties jointly agreed to consolidate the cases for the 2012, 2013, 2014, 2015, and 2016 refund claims, and the Tribunal entered an order consolidating the cases on September 13, 2017.

After discovery and extensive briefing, both parties moved for summary judgment. On June 12, 2019, the Tribunal denied both parties' motions for summary judgment, finding that material facts were still in dispute, including quantification of the equipment, and whether the refund claims met the $15 requisite million threshold in the high-tech exemption. (Order at 6.)

The Tribunal held a trial in this matter on December 17, 18, 19, and 20, 2019. Three witnesses testified on behalf of T-Mobile: two corporate representatives, John Barnes and Shawn Blassingill, and an expert witness, Dr. Stephen Ralph.[3]

John Barnes is Senior Director of Transaction Tax for T-Mobile. (Tr. 34.) He has worked at T-Mobile since 2013 and has worked on sales tax issues for telecommunications companies for

---

[2] T-Mobile also argues in the alternative that legislation at issue in this case – House Bill 1441 – is unconstitutional. See H.B. 1441, 147th Gen. Assemb., Reg. Sess. (Ga. 2002). The Tribunal finds that it does not have authority to rule on this claim under Tax Tribunal Rule 616-1-3-.21, which states that the Tribunal is not authorized to resolve constitutional challenges. Although the Tribunal is authorized under Tax Tribunal Rule 616-1-3-.21 to make findings of fact regarding constitutional challenges, it declines to do so in the present case.

[3] On October 18, 2019, the Tribunal received the *Department's Motion to Exclude the Expert Report, Opinions, and Testimony of Dr. Stephen Ralph and Brief in Support*. Oral arguments in this matter were held on November 4, 2019. The Tribunal denied the Department's motion, finding Dr. Ralph qualified to provide expert testimony pursuant to O.C.G.A. § 24-7-702(b).

over two decades. (Tr. 34–35.) He and his team at T-Mobile are responsible for overseeing T-Mobile's audits and controversies, which involve refund claims. (Tr. 36.) Mr. Barnes testified on behalf of T-Mobile about T-Mobile's systems and processes, the refund claims, and the Department's audit of those refund claims.

Shawn Blassingill is T-Mobile's Senior Development Manager for the Atlanta Market. (Tr. 354.) He has worked at T-Mobile since 2011. (Id.) His role at T-Mobile requires him to understand the equipment used in T-Mobile's network, and his team installs equipment at T-Mobile's cell sites and manages network performance. (Tr. 355–58.) He testified about the equipment, its functionality, how T-Mobile purchases the equipment, why the equipment was purchased, and the buildout of the LTE network. Based upon his review of the refund claims, he gave detailed testimony of each type of asset in the equipment. (Tr. 435–538.)

Dr. Stephen Ralph holds a Ph.D. in electrical engineering. Dr. Ralph is a professor at the Georgia Institute of Technology in the School of Electrical Computer Engineering, and the Director of the Georgia Electronic Design Center, which conducts research on high-speed communications systems. (Tr. 623–24; Joint Ex. 22A.) Dr. Ralph previously worked as an engineer on IBM's Watson computing project and as an engineer at Bell Labs. (Tr. 626; Joint Ex. 22A.) Dr. Ralph holds numerous patents, has published numerous papers, and has given numerous lectures on communications and computing technology. (Tr. 623–32; Joint Ex. 22A.) To provide his opinions about the equipment, Dr. Ralph spoke with Mr. Blassingill and visited T-Mobile's switch facility in Norcross, where he spoke to other engineers. (Tr. 634–35.) During his visit, Dr. Ralph reviewed a mock-up of a cell site configuration and many types of assets included in the equipment, such as radios and antennas. (Id.) Dr. Ralph also conducted his own independent research regarding the types of equipment in the refund claims. (Tr. 634.) T-Mobile proffered Dr.

Ralph as an expert in communications network technology, and he provided expert testimony regarding the functionality of the Equipment and wireless technology generally. (Tr. 633, 626-628.)

Two witnesses testified on behalf of the Department: its agency representative, Tommy Cooper, and its expert witness, Stephen Barreca.[4]

Tommy Cooper is the Assistant Director of Audits for the Department of Revenue. (Tr. 205.) Mr. Cooper became Assistant Director in August 2016, and prior to that was an Audit Manager. (Id.) In his role as Assistant Director, he reviews auditors' work, including audits of refund claims. (Tr. 231.) He has worked with Department for nine years. (Tr. 205.) Mr. Cooper was offered as the person at the Department most knowledgeable about this case, but he was not personally involved in the audit or denial of the refund claims. (Tr. 217–218.) Mr. Cooper did not know whether anyone at the Department ever looked at the 2013, 2014, 2015, and 2016 refund claims before denying the claims. (Tr. 285.) He testified on the Department's practices in reviewing refund claims, its interpretation of the high-tech exemption and his understanding of the refund claims.

Stephen Barreca is a licensed professional engineer. (Tr. 898-99.) Mr. Barreca is the principal of a company that specializes in "areas of depreciation and valuation theory and practice." (Joint Ex. 20A; Tr. 897.) He is a certified appraiser and has not worked as an engineer since 1996. (Tr. 899, 916.) He reviewed the refund claims "from an engineering perspective" to determine whether they met the statutory criteria. (Tr. 926.) The Department proffered Mr. Barreca to testify as an expert in telecommunications equipment. (Tr. 915.)

[4] On October 18, 2019, T-Mobile filed its *Motion in Limine to Exclude Stephen Barreca as an Expert Witness and Memorandum of Law in Support.* Oral arguments in this matter were held on November 4, 2019. The Tribunal denied T-Mobile's motion, finding Mr. Barreca qualified to provide expert testimony pursuant to O.C.G.A. § 24-7-702(b).

III. Findings of Fact

A. The Refund Claims

1.

T-Mobile is qualifying high-technology company under O.C.G.A. § 48-8-3(68). (Tr. 237.) The Department issued the requisite Certificate of Exemption stating that T-Mobile "has qualified to purchase or lease computer equipment tax exempt . . ." on September 11, 2015. (Stipulations ¶ 28; Joint Ex. 14.)

2.

T-Mobile timely filed its refund claim for the periods of May 30, 2012 to December 31, 2012 for purchases exempted from sales taxes in the amount of $2,031,907.47 on May 4, 2015 (the "2012 refund claim"). (Stipulations ¶ 11.)

3.

On July 15, 2016, the Department issued its denial of the 2012 refund claim as Letter ID L1626314896. (Joint Ex. 2.) After T-Mobile protested this denial, the Department issued its protest ruling, finding that the claim for refund was properly denied. (Joint Ex. 4.)

4.

T-Mobile timely filed its refund claim for the periods January 1, 2013 through December 31, 2013 on March 31, 2017 for $3,171,342.52 (the "2013 refund claim"). (Stipulations ¶ 17.) The Department denied the 2013 refund claim on June 13, 2017 through its letter with the Letter ID L0718325840. (Joint Ex. 6.)

5.

T-Mobile timely filed its refund claim for the periods January 1, 2014 through December 31, 2014 on March 31, 2017 for $2,737,547.08 (the "2014 refund claim"). (Stipulations ¶ 19.)

The Department denied the 2014 refund claim on June 13, 2017 through its letter with the Letter ID L1894510672. (Joint Ex. 8.)

6.

T-Mobile timely filed its refund claim for the periods January 1, 2015 through December 31, 2015 on April 3, 2017 for $1,482,969.93 (the "2015 refund claim"). (Stipulations ¶ 21.) The Department denied the 2015 refund claim on June 13, 2017 through its letter with the Letter ID L0149680208. (Joint Ex. 10.)

7.

T-Mobile timely filed its refund claim for the periods January 1, 2016 through December 31, 2016 on April 3, 2017 for $1,997,642.54 (the "2016 refund claim"). (Stipulations ¶ 23.) The Department denied the 2016 refund claim on June 13, 2017 through its letter with the Letter ID L1611689872. (Joint Ex. 12.)

8.

The total refund amounts submitted by T-Mobile are as follows:

Year	**Refund Claim Amounts**
2012	$2,031,907.47
2013	$3,171,342.52
2014	$2,737,547.08
2015	$1,482,969.93
2016	$1,997,642.54
Total	$11,421,409.54

(Petitioner's Ex. 8; Tr. 132.)

9.

As part of its refund claim submissions, T-Mobile, in compliance with the Department's policies, submitted spreadsheets in Microsoft Excel (.xls) format detailing the assets claimed in

each of the refund claims. (Joint Exs. 23, 24, 25, 26, 27; Stipulations ¶ 34.) These spreadsheets include an item by item listing of each unique asset purchased, the "geocode" (or location where the asset was deployed), the amount paid for the item, and the sales tax refund requested.

10.

Joint Exhibits 23, 24, 25, 26, 27 list purchases by Petitioner from T- Mobile Resources Corporation ("TMR"). (Tr. 40–42, 136, 181.) TMR purchases items from vendors like Nokia and resells them to Petitioner. (Id.) TMR was established to purchase things for cell sites, not the switching center. (Tr. 40.)

11.

It is undisputed that T-Mobile paid the sales tax amounts at issue in this case and that taxes were remitted to the Department. (Stipulations ¶ 38.)

12.

T-Mobile's total purchases of equipment in connection with the refund claims (including software on which no refund was claimed), were in the following amounts:

Year	**Purchase Amounts on which Tax Paid from Refund Claims**
2012	$30,506,054.09
2013	$58,703,142.77
2014	$53,765,866.11
2015	$30,195,169.65
2016	$32,667,280.69

(Petitioner's Ex. 8; Tr. 132.)

B. The Department's Audit of the Refund Claims

13.

The Department began its audit of T-Mobile's 2012 refund claim on or about July of 2015. (Tr. 56.) Jennifer Combs, an audit manager for the Department, was assigned to the 2012 refund

claim and requested information from T-Mobile to audit the claim. (Petitioner's Ex. 1; Tr. 56–57.) T-Mobile provided all the information Ms. Combs requested to conduct the audit. (Id.)

14.

On April 21, 2016, Jennifer Combs indicated that she would recommend approval of T-Mobile's 2012 refund claim and sent T-Mobile workpapers showing the items listed in the 2012 refund claim that had been approved. (Tr. 99–101; Joint Exs. 30–31.)

15.

On May 18, 2016, Ms. Combs notified T-Mobile that she was leaving the Department and that she anticipated the 2012 refund claim would be approved soon. (Joint Ex. 16J.) After Ms. Combs left the Department, T-Mobile's refund claim was assigned to a new auditor, Victoria DeLeon, and her manager, Shelia Lozano. (Tr. 212.)

16.

Although the email from Ms. Combs indicated the imminent approval of the 2012 Refund claim, T-Mobile's representatives were later informed that the Department denied the 2012 Refund claim. (Tr. 102, 112–114.)

17.

In the denials for each of the refund claims, the Department stated the reason for denial was failure to meet the $15 million annual purchase threshold requirement of computer equipment as defined by the statute. (Joint Exs. 2, 6, 8, 10, 12.)

18.

Further, in the subsequent denial of T-Mobile's protest (to the 2012 refund claim denial), the Department stated that its reason for denying the claim was that the Department considered the items in the refund claim to be "'telephone central office equipment or other voice data transport

technology' and thus, not computer equipment as defined in O.C.G.A. § 48-8-3(68)." (Joint Ex. 4; Tr. 117, 854–55.)

C. The Equipment

a. T-Mobile's LTE Network

19.

In 2012, T-Mobile began its investment in a new broadband LTE network. (Tr.367.) The LTE service was launched and available to customers in 2013. (Tr. 375.) The deployment of the new LTE network was a substantial investment which required T-Mobile to purchase computer equipment and software. (Tr. 370.) The buildout of the LTE network involved the creation of jobs for engineers and contractors. (Id.)

20.

LTE was a major advancement in the industry, and the complexity of the system required high-tech contractors and vendors, who were able to understand computers and software beyond basic hardware and cabling that previously existed. (Tr. 371.)

21.

T-Mobile made this large investment to meet its customers' demand because the environment was becoming more data-centric. (Tr. 372.) To meet this demand, T-Mobile focused on driving its high-speed data offering. (Id.) Once launched, the LTE network provided customers high-speed capacity and bandwidth for all data sessions—Internet, smartphones, texting, streaming, social media. (Tr. 373.)

i. LTE was a Technological Shift from the Other Networks

22.

A key distinction between the LTE network and prior technology is that LTE is Internet Protocol "IP" based and entirely packet switched. (Tr. 675–76.) While 3G networks had some packet switching ability, these networks were still built around circuit switching technology and continue to be capable of circuit switching. (Id.) Under an entirely LTE system, "you have no voice switches." (Tr. 1000.) A fully packet-switched system is a data center. (Id.)

23.

3G was not considered "true internet," which requires Internet Protocol. (Tr. 1000.) Only then, when there was true Internet with 4G, did the speeds go up tremendously. (Id.) Without LTE, a customer would not have the same Internet experience—for example, streaming a video would be possible but very slow and no one would want to do so. (Tr. 377.) Buffering would cause this to take three times as long. (Id.) For example, watching a live video football game through 3G would not be a satisfactory user experience. (Tr. 1202.)

23.

Although T-Mobile continued to maintain its existing 2G and 3G networks after the launch of LTE, T-Mobile did not continue to make new investments in its existing networks. (Tr. 395.) During the refund claim periods, T-Mobile's 2G and 3G networks were maintained, but the only equipment that was purchased for these networks was used for repairs. (Id.)

34.

T-Mobile's 3G network had some limited ability to provide data services. Although software patches and computations could provide some enhancement to data flow and service capability, eventually, new upgraded hardware was necessary to support these services. (Tr. 664.)

The upgraded hardware was not only more sophisticated, but also more efficient at using both spectrum and power. (Tr. 675.)

35.

In 2012, prior to the buildout of LTE, T-Mobile could not have installed LTE compatible software on the existing 3G network equipment because the existing equipment was not compatible with the new LTE software. (Tr. 395.)

36.

Users' device and other factors not controlled by T-Mobile or the equipment determine which network (2G, 3G, or LTE) signals are going to flow through. (Tr. 385.)

ii. LTE is a Data Network

37.

LTE is not a voice network—it was "the first wireless system which was designed from the beginning as a data network." (Tr. 676.) T-Mobile already had 2G and 3G voice networks, and LTE was not intended for voice. (Tr. 376.)

38.

When T-Mobile first launched its LTE network in 2013, it was not capable of transmitting voice. (Tr. 375–76.) Voice could not travel over T-Mobile's LTE network until June 2014. (Tr. 376–77.) There was no capability for voice service until that time due to how the software was configured. (Tr. 390.) From that time forward, 99.8% of the traffic in the LTE network is data, not voice. (Tr. 389.)

39.

T-Mobile LTE Internet service provides Internet service for phones or tablets. (See Tr. 372.) When T-Mobile first launched its LTE network in 2013, most devices were not capable of making voice over LTE calls. (Tr. 375-76.)

40.

The "Internet" is an interconnection of devices and systems in order to store, manage, transmit, receive data, and to generate data. (Tr. 678.) "It is a large distributed computer system interconnected with high-speed networks." (Id.) The LTE network is one such "distributed network," and T-Mobile's network equipment is an integral part of the high-speed Internet. (Tr. 679.) T-Mobile's LTE network is an assembly of hardware and software that must be interconnected by high-bandwidth connectivity. (Tr. 367.)

b. T-Mobile Cell Sites and Functionality

41.

A cell site is an outdoor facility, which comes in various forms. T-Mobile's cell sites are typically fenced-in compounds with gravel and a tower near it. (Tr. 379.) The towers are seen in the air and commonly recognizable but can be various types—a single pole, a lattice tower, a self-support tower, three-legged, or guide tower. (Tr. 379.) T-Mobile generally leases space at these cell towers to put its equipment there, along with other carriers. (Tr. 379.)

42.

The equipment used in T-Mobile's LTE network is purchased and delivered into Georgia. When cell site equipment is received, it comes in a kit and is labeled for the site where it will be installed, and contractors pick it up to install at the cell site. Before equipment can be deployed in

the network, it must be commissioned and integrated to "bring it on air," or make it part of the T-Mobile LTE network. (Tr. 394.)

43.

When the Equipment arrives, it is preloaded with LTE software. (Tr. 395.) LTE software allows the high-speed or high-bandwidth connectivity to operate. (Id.) This software is different from the software that was used by T-Mobile for 2G or 3G. (Id.)

44.

Like other Internet Service Providers, T-Mobile's LTE network at the cell sites routes traffic from the Internet "cloud" to the users' computers and devices. (Tr. 383.) T-Mobile also has a switching facility, which is connected to the cells cites through backhaul. (Tr. 380.)

45.

Voice and data signals do not end in the same place. (Tr. 383.) Once signals go back to T-Mobile's switch, there are different routes for data and voice. (Id.) For example, if a user sends an email, that radio frequency ("RF") signal will be picked up by an antenna at the nearest T-Mobile cell site. (Tr. 378.) The antenna interprets that data and information, sends it down the cables (coaxial or fiber) to the radios, down to system modules and routers, and back to T-Mobile's switch facility. (Tr. 378.) From there, the RF signal routes back to the internet cloud-based traffic session or data session to connect with the email server. (Tr. 378.)

46.

Backhaul is the transport that connects the cell sites and the switching facility. Backhaul comes in various forms, such as fiber optic cable, microwaves, old copper cable, etc. (Tr. 380–81.) Spectrum refers to the frequency bands that are used to send signals through the network, and all carriers acquire spectrum from the government. (Tr. 380.)

i. T-Mobile Does Not Maintain a Telephone Central Office

47.

The term "central office" is a term of art. (Tr. 641.) It is a longstanding term of art, originating with the Bell system. (Tr. 641.) The concept of the central office originated in the late 1800s. (Tr. 649.) The general structure of a central office connecting different locations that are connected through wiring to land lines, exemplified by a Bell Telephone patent from 1970, is still accurate. (Petitioner's Ex. 21; Tr. 645–48.)

48.

Mr. Cooper provided the following definition of a "central office," which he relied upon to understand the exclusion from the high-tech exemption:

> In almost every neighborhood there is a windowless building that houses the switching equipment that connects your telephone to your neighbor's telephone or routes your call to another central office for long distance calls. This building is called the central office. The central office has switching equipment that can switch calls locally or to long-distance carrier phone offices.

(Joint Ex. 15; Tr. 246.) This definition was also generally agreed upon by witnesses at the trial. (Joint Ex. 15; Tr. 246, 366-67, 642.)

49.

T-Mobile does not have a central office. (Tr. 247; Tr. 366–67.) The "central office" "goes way back to the wire line carriers and the buildings where all the copper lines came together and the switching occurred." (Tr. 248.) A central office is an aggregation point for local exchange service. (Tr. 39.) Wireless carriers, such as T-Mobile, do not have a central office. (Tr. 642.) T-Mobile does not operate a windowless building in every neighborhood that switches equipment to the correct land lines. (Tr. 643.)

50.

T-Mobile does not connect your telephone to a neighbor's telephone to route calls to other central offices. (Id.) "If you make a call from a mobile phone to a [land] line, it's going to go from the mobile phone to the tower to the mobile telephone switching office to a central office to a [land] line." (Id.) But the central office that such a call goes through is not owned or operated by T-Mobile. (Tr. 643.)

51.

Wireless service first became widely available (but very expensive) in the 1980s. (Tr. 652–53.) By the end of the 1990s, 30–40% of customers had cell phone service. (Tr. 654, 659.) The early 2000s was the beginning of the transition of 2G to 3G technology in the United States. (Tr. 660.)

52.

Beginning in the mid-1980s, central offices began digitizing their systems, which transmitted analog voice signals and routed telephone calls over land line connections through the publicly switched telephone network digital switches as "voice data." (Tr. 658.) By around 2002, central offices had transitioned entirely to digital switches. (Tr. 657–59.)

53.

Wireless service, unlike wireline, operates through radio technology. (Tr. 654–55.) Radio technology is the use of electromagnetic radiation to convey signals. (Tr. 655.) Unlike the central office, radio signals propagate through the air with no need for a medium such as copper wires. (Tr. 655.) Central offices do not require radios and antennas because there are no freely propagating signals for wireline. (Tr. 657.)

54.

Cell sites are designed to manage the key distinction between the wireline and wireless—that wireless customers are mobile, and that the cell sites must be able to move signals. (Tr. 655–56.) For fixed landline, the customer is not moving, so there is no need for the mobile functionality. (Tr. 656.)

c. The Equipment Descriptions

55.

The vast majority of the equipment is located at cell sites. (Tr. 382.) All equipment purchased by TMR is deployed at the cell sites. (Tr. 40.) The rest of the equipment, representing less than 4% of the total refund claims, was deployed at the switching facility. (See Petitioner's Ex. 18.)

56.

The stipulated refund claim spreadsheets included "material groups" for each item. "Material groups are categories that [T-Mobile's] procurement folks create within a system for grouping items together." (Tr. 137; accord Tr. 391–92, 434.) The groups are a category that exists in T-Mobile's accounting system; they were not created for this litigation or for tax purposes. The material groups do not provide enough information to make a determination about whether a single asset is computer equipment under the statute. (Tr. 1154.)

57.

In an effort to help the Department and its counsel understand the types of equipment in the material groups, T-Mobile provided general descriptions of each of the material groups. (Joint Ex. 16S.) These material group descriptions were created specifically to assist the Department's understanding of the equipment for this litigation and were prepared based upon Mr. Blassingill's

engineering experience with the equipment. (Tr. 557–588.) The "material group descriptions" were subsequently appended as an additional column to the spreadsheets at the request of the Department's counsel. The material groups provided a way to categorize equipment, but T-Mobile never stated or otherwise indicated that all of the equipment in a single material group qualifies for the high-tech exemption based on its categorization in the material group. Material groups are internal groupings, not terms standardized across the industry. (Tr. 1150–51.)

58.

Mr. Blassingill determined that "material description" provides the most helpful information that allows him to identify what the items are. (Tr. 434.) These material descriptions are a combination of descriptions provided by T-Mobile's procurement team and the equipment manufacturers. (Id.) Likewise, the Department's expert, Mr. Barreca, knew and was able to filter the unique assets based on material descriptions. (Joint Ex. 19 at App'x 4.) Each of these assets, or "material descriptions," match the items described during the trial and comprise the totality of the refund claims.

59.

Although the total refund claims consist of over 35,000 line items representing each individual asset (Petitioner's Exhibit 17), there are substantially fewer types of items. (Tr. 95–96.) T-Mobile buys many units of the same piece of equipment, or the same "material description" over and over again. (Tr. 95.)

d. The Equipment Specifically

60.

At trial, Mr. Blassingill described in detail 55 individual assets types that make up all of the individual types of equipment (and the many variations of these 55 asset types) in the "material

description" field from Joint Exhibits 23, 24, 25, 26, and 27. (Tr. 435–538.) These descriptions cover every asset in the refund claim and are all also listed in Petitioner's Exhibit 17.

61.

A "7705 Cell Site Router, 22 SAR-A-48VDC" is a cell site transport router, which communicates with both system modules, radios, and the switch facilities. (Tr. 435.) A 7705 Cell Site Router, 22 SAR-A-48VDC is programmable; electronic; and it stores, retrieves and processes data. (Tr. 436.) This item appears 94 times in the refund claims. (Tr. 436.)

62.

A "7705 Cellsite 24 router, SAR-M-48VDC" is like a SAR-A router, but a different variation of router. (Tr. 437.) It also communicates with both system modules, radios, and the switch facilities. (Tr. 436.) The difference in variations of routers is the capacity to handle traffic and the number of transport connection points to it. (Tr. 437.) A 7705 Cell Site Router, 22 SAR-M-48VDC is programmable; electronic; and it stores, retrieves and processes data. (Tr. 438.) This item appears 1228 times (rows 95–1322 of Petitioner's Exhibit 17) in the refund claims. (Tr. 438–39.)

63.

A "7705 SAR-8v2 Cell Site Kit - 16xGE" is a different model variation of the above two routers, and also comes as a "kit" with other ancillary items that are necessary for that component—such as fiber jumpers, maybe power cables. (Tr. 439–40.) A 7705 SAR-8v2 Cell Site Kit - 16xGE is programmable; electronic; and it stores, retrieves and processes data. (Tr. 440–41.) This item appears 23 times (rows 1,323–1,345 of Petitioner's Exhibit 17) in the refund claims. (Tr. 441.) The 7705 SAR-8v2 Cell Site Kit - 32xGE is the same item with the same functionality, but with different capacity, and appears once in the refund claims. (Id.)

64.

A "7705 SAR-Wx TMO BUNDLE & ANCILARY KIT" is also a cell site router used for micro small cell application, meaning it is not on the tower. (Tr. 442.) A 7705 SAR-Wx TMO BUNDLE & ANCILARY KIT is part of the LTE network; and it programmable; electronic; and it stores, retrieves and processes data. (Tr. 443.) This item appears 17 times (rows 1,347–1,363 of Petitioner's Exhibit 17) in the refund claims. (Tr. 441.)

65.

A "FBBA System Module" is a hybrid of a system module and a radio. (Tr. 445.) It processes data packet information received and transmitted to T-Mobile's routers and radios. (Tr. 445.) It is visible on Petitioner's Exhibit 12. (Tr. 444.) The FBBA System Module operates software, is programmable, electronic, and is part of the LTE network. (Tr. 445.) This item appears 1,615 times (rows 1,391–3,005 of Petitioner's Exhibit 17) in the refund claims. (Tr. 446.)

66.

A "Used FBBA" is the same as an FBBA system module, except that it is not new out of the box. (Tr. 447.) It contains software and is part of the LTE network. (Id.) This item appears 23 times (rows 11,169–11,191 of Petitioner's Exhibit 17) in the refund claims. (Tr. 448.)

67.

A "FBBC" is also a system module, like the FBBA. (Tr. 448.) In the base station, as seen on Petitioner's Exhibit 12, there can be various models of a particular component, but they perform similar functionalities. (Tr. 449.) The FBBC has a little more capacity than the FBBA. (Id.) The FBBC is programmable, it has software, is electronic, and used in the LTE network. (Id.) This item appears 830 times (rows 3,006–3,835 of Petitioner's Exhibit 17) in the refund claims. (Tr. 449–50.)

68.

A "FOSI Flexi Optical SFP I 1310nm 6G SM" is a plug-in component for transport that would plug into existing modules and is visible on Petitioner's Exhibit 12. (Tr. 451.) There are various versions of this type of transport cards that connect system modules and radio—B, H, and I SFP cards. (Tr. 451.) These components provide capacity for system modules and radios. (Tr. 451.) SFP plug-ins receive and transmit software. (Id.) It is programmable. (Tr. 452.) The FOSI Flexi Optical SFP I 1310nm 6G SM is electronic and has a laser built in. (Id.) This item appears 2,642 times (rows 3,897–6,538 of Petitioner's Exhibit 17) in the refund claims. (Tr. 452–53.)

69.

A "FSME Rel2 System Module w/o FSKA" is referred to as a system module/radio but is really a ground-based radio that processes data and transports information. (Tr. 453.) The FSME Rel2 System Module w/o FSKA operates software, it is electronic, and it retrieves and processes data. (Tr. 454.) This item appears 1,456 times (rows 6,539–7,994 of Petitioner's Exhibit 17) in the refund claims. (Tr. 454–55.)

70.

The "FSMF Sys Mod For WCDMA-FSCB-FTSF" is a system module and radio that receives and processes data and communicates directly with routers and antennas. (Tr. 455–56.) It is visible in Petitioner's Exhibit 12. (Id.) The FSMF Sys Mod For WCDMA-FSCB-FTSF has software in it, and it is connected electronically and via high-speed bandwidth connectivity to the network. (Tr. 456.) This item appears 534 times (rows 7,995–8,528 of Petitioner's Exhibit 17) in the refund claims. (Tr. 456–57.)

71.

The "FSMF System Module" is the same item, as described above for the FSMF Sys Mod For WCDMA-FSCB-FTSF, just with the name not truncated. (Tr. 457.) It has software in it, it processes information, and it is interconnected with the rest of the LTE system. (Tr. 457–58.) This item appears 2,591 times (rows 8,529–11,119 of Petitioner's Exhibit 17) in the refund claims. (Tr. 458.) The refund claims also contain a single "Used FSMF," which is the same type of equipment as the FSMF, but is used. (Tr. 459). This item appears 1 time (row 11,192 of Petitioner's Exhibit 17) in the refund claims. (Id.)

72.

A "Nano3G E16 Access Point (Band 2)" is a combined router/radio for an indoor application of T-Mobile's system. (Tr. 460.) This would be located at an office building or a courtroom along with an antenna and a router system creating more of a local area network that ties back to the LTE network. (Tr. 460–61.) A Nano3G E16 Access Point (Band 2) contains software, is programmable, and is part of T-Mobile's LTE network. (Tr. 461.) This item appears 5 times (rows 11,130–11,134 of Petitioner's Exhibit 17) in the refund claims. (Id.)

73.

A "Nano3G E24 Access Point (Band 2)" is the same as the Nano3G E16 Access Point (Band 2), but with additional capacity and ports available for connectivity. (Tr. 461–62.) Like a Nano3G E16 Access Point (Band 2), Nano3G E24 Access Point (Band 2) contains software, is programmable, and is part of T-Mobile's LTE network. (Tr. 461.) This item appears 1 time (row 11,135 of Petitioner's Exhibit 17) in the refund claims. (Tr. 462.)

74.

The "FMCA FLEXI 3U MOUNTING COVERS FRONT/BACK" is the outer casing and mounting kit for T-Mobile's ground-based radios. (Tr. 462–63.) This item is visible on Petitioner's Exhibit 10. (Tr. 463.) Because the equipment at T-Mobile's base stations is outdoor rated equipment, it must have protective coverings such as this cover. (Id.) The FMCA FLEXI 3U MOUNTING COVERS FRONT/BACK is part of the assembly of hardware and software that T-Mobile uses to provide LTE service. (Tr. 463.) This item appears 61 times (rows 3,836–3,896 of Petitioner's Exhibit 17) in the refund claims. (Tr. 463–64.)

75.

A "CTR 8312 and Base Kit" is a router, similar to other routers described, but used for microwave solution, or backhaul when a fiber solution is unavailable. (Tr. 464.) Unlike the other routers which connect through fiber, this router communicates directly with a microwave radio and dish back to a site where there is fiber. (Tr. 465.) A CTR 8312 and Base Kit is programmable, and it is part of T-Mobile's high-speed data network. (Tr. 465–66.) This item appears 9 times (rows 1,376–1,384 of Petitioner's Exhibit 17) in the refund claims. (Tr. 466.)

76.

A "CTR 8540 and Base Kit" is a different model and variation of the microwave router solution described for a CTR 8312 and Base Kit. (Tr. 466.) A CTR 8540 and Base Kit is also programmable, contains software, and is part of the LTE network. (Id.) This item appears 6 times (rows 1,385–1,390 of Petitioner's Exhibit 17) in the refund claims. (Tr. 467.)

77.

A "Radio Node - SCRN-200-242" is a radio and router combined for a small cell application. (Tr. 471.) It would be a small cell radio equivalent to the FSMFs and other radio

functionality discussed above. (Tr. 471–72.) A Radio Node - SCRN-200-242 contains software and transmits data as part of the LTE network. (Tr. 472.) This item appears 5 times (rows 11,136–11,140 of Petitioner's Exhibit 17) in the refund claims. (Id.)

78.

A "Services Node - SCSN-9000-1" is hardware equipment—another radio and router for small cell applications, like the Radio Node - SCRN-200-242. (Tr. 471–72.) The Services Node - SCSN-9000-1 has software, is programmable, and is used as part of T-Mobile's LTE network. (Tr. 472.) This item appears 3 times (rows 11,141–11,143 of Petitioner's Exhibit 17) in the refund claims.

79.

A "Small Cell FWIB BTS AWS" is hardware for small cell solutions that is a combination of components, system modules, and antennas. (Tr. 472.) It is located at the base in the BTS equipment for small cells. (Id.) A Small Cell FWIB BTS AWS is programmable, electronic, has software, and is part of the LTE network. (Tr. 472–73.) This item appears 17 times (rows 11,144–11,160 of Petitioner's Exhibit 17) in the refund claims. (Tr. 473.)

80.

A "Small Cell FWID Indoor integrated Ant" is an electronic hardware component for a small cell application, used indoors where additional coverage is needed. (Tr. 473.) It is a fully integrated antenna and radio. (Id.) A Small Cell FWID Indoor integrated Ant has software in it, is programmable, and is used to transmit data as part of T-Mobile's LTE network. (Tr. 474.) This item appears 9 times (rows 11,161–11,168 of Petitioner's Exhibit 17) in the refund claims. (Id.)

81.

A "3G Picocell Nano S8 Band 2 OCXO" is a router for an indoor micro network solution—a smaller scale of the entire network. (Tr. 474–75.) This is the equivalent to cell site routers discussed earlier, but for this smaller scale site. (Tr. 474.) A 3G Picocell Nano S8 Band 2 OCXO has software in it, is programmable, and transmits data as part of T- Mobile's LTE network. (Tr. 475.) Although this material description contains "3G" in the name, this was likely a term that was never updated in the system in terms of model. (Tr. 475–76.) This item appears 11 times (rows 1,364–1,374 of Petitioner's Exhibit 17) in the refund claims. (Tr. 476.) There is a 3G Picocell Nano S8 Band 4 OCXO, which is identical except that it has additional bands or ports and appears 1 time (row 1,375 of Petitioner's Exhibit 17) in the refund claims. (Id.)

82.

A "FOSA Flexi Optical SFP A 1310 nm3G 15Km" is a transport module that plugs into ground-based radio and system models such as the FMSF and FRIEs. (Tr. 476–77.) A FOSA Flexi Optical SFP A plugs into computers and is electronic and processes data. (Tr. 477.) It is part of T-Mobile's LTE network. (Id.) This item appears 1,580 times (rows 11,194–12,773 of Petitioner's Exhibit 17) in the refund claims. (Tr. 478.)

83.

A "FOSB Flexi Optical SFP B 850nm3G 200m MM," like the FOSA plug-in described above, is a transport plug-in for system modules and radios. It can be seen on Petitioner's Exhibit 12. (Tr. 478–79.) A FOSB Flexi Optical SFP B 850nm3G 200m MM is also electronic and transmits data using T-Mobile's LTE network. (TR. 479.) Although the name says "3G" it transmits data through LTE. (Id.) This item appears 14 times (rows 12,774–12,787 of Petitioner's Exhibit 17) in the refund claims. (Id.)

84.

A "FOSC Optical SFP LX 131nm SM-Small Cell," like the FOSA/FOSB plug-ins described above, is also a transport plug-in, but the difference is that it is used in the small cell micro solution and would tie directly to the modules and radios. (Tr. 479–80.) This would be located outdoors at a small cell installation, such as a traffic light or light pole. (Tr. 480.) This item appears 1 time (row 12,788 of Petitioner's Exhibit 17) in the refund claims. (Id.)

85.

A "FOSG Flexi Optical SFP G 850nm 3Gps MM," like the FOSA/FOSB/FOSC plug-ins described above, is type of transport card that ties into the system modules and radios, but it is used in a macro solution. (Tr. 480–81.) A FOSG Flexi Optical SFP G is electronic and plugs into computers. (Tr. 481.) Here, where the term "3G" appears, it is not referring to 3G technology, but 3GPS, which is a speed—per second. (Tr. 481–82.) This item appears 270 times (rows 12,789–13,058 of Petitioner's Exhibit 17) in the refund claims. (Tr. 482.)

86.

A "FOSH Optical SFP H 850nm 6g MM," like the FOSA/FOSB/FOSC/FOSG plug-ins described above, is another variation of the plug-in transport card, with a different size and capacity. (Tr. 482.) It can be seen on Petitioner Exhibit's 12 and would plug into either the front of an FMSF or FRIE. (Id.) A FOSH Optical SFP H is electronic, is used to transmit data through LTE, and is part of T-Mobile's LTE network. (Tr. 482.) This item appears 1,752 times (rows 13,059–14,810 of Petitioner's Exhibit 17) in the refund claims. (Tr. 483.)

87.

A "FPFD - FSMF DC power distribution unit" is a power distribution unit used for DC [direct current] power. (Tr. 483.) There is some base station equipment that only receives DC

power, which is not otherwise delivered to the cell sites. (Tr. 484.) The FPFD - FSMF DC power distribution unit converts the AC [alternating current] power received at the cell sites to DC power in order to power the computers that are in the BTS cabinet at the cell sites. (Id.) Therefore, the item is part of T-Mobile's LTE network and an assembly of hardware and software. (Id.) This item appears 759 times (rows 14,811–15,569 of Petitioner's Exhibit 17) in the refund claims. (Id.)

88.

A "FTLB Transport Eth/PDH high-performance" is part of T-Mobile's fiber backhaul, the transport that powers the LTE network. (Tr. 485.) It is a transport card that plugs into systems modules and radios to provide high-speed transmission by providing a fiber path. (Id.) The FTLB Transport Eth/PDH high-performance is part of the assembly that transmits data using T-Mobile's LTE network. (Tr. 486.) This item appears 815 times (rows 15,570–16,384 of Petitioner's Exhibit 17) in the refund claims. (Tr. 486.)

89.

A "FHFB Flexi RRH 1900 4T4R 160W 65Mhz" is a remote radio head—a Flexi radio for the LTE network located at the tower top. (Tr. 487.) A tower top with a similar remote radio head is shown on Petitioner's Exhibit 14. (Id.) A FHFB Flexi RRH 1900 4T4R 160W 65Mhz is programmable, it has software, and it is used as part of T-Mobile's LTE network. (Id.) This item appears 192 times (rows 25,110–25,301 of Petitioner's Exhibit 17) in the refund claims. (Id.)

90.

A "FRBG Flexi RRH 700 2T2T 80W 16Mhz" is an LTE radio. (Tr. 488.) The "700" in the name denotes the 700 band, which is a frequency for the LTE network. (Id.) A FRBG Flexi RRH 700 2T2T 80W 16Mhz is programmable. (Tr. 489.) This item appears 172 times (rows 25,302–25,473 of Petitioner's Exhibit 17) in the refund claims. (Id.)

91.

A "FRIE 40W RF Head 3TX (2nd+ Carrier) wRET" is another radio for the LTE network. (Tr. 489–90.) Unlike the other radios discussed above, this radio is placed at the ground, in a BTS cabinet. (Id.) A FRIE 40W RF Head 3TX (2nd+ Carrier) wRET is programmable, has software, and is used as a part of T-Mobile's LTE network. (Tr. 490.) This item appears 250 times (rows 25,474–25,723 of Petitioner's Exhibit 17) in the refund claims. (Id.)

92.

A "FRIE RF Head 3TX (for 2nd+ Carrier)" is another radio for the LTE network. (Tr. 490–91.) The only difference from the FRIE 40W RF Head 3TX (2nd+ Carrier) wRET, is that it does not have the "wRET" or with remote electronic tilt. (Tr. 491.) A FRIE 40W RF Head 3TX (2nd+ Carrier) is programmable, has software, and is used as a part of T-Mobile's LTE network. (Id.) This item appears 52 times (rows 25,724–25,775 of Petitioner's Exhibit 17) in the refund claims. (Tr. 492.)

93.

A "FRIG Flexi RRH 1.7/2.1 4x30W" is another remote radio head on top of the tower, similar to what is shown on Petitioner's Exhibit 14. (Tr. 492.) FRIG Flexi RRH 1.7/2.1 4x30W is programmable, it has software, and is used as a part of T-Mobile's LTE network. (Id.) This item appears 1,656 times (rows 25,776–27,431 of Petitioner's Exhibit 17) in the refund claims. (Tr. 493.)

94.

A "FRIJ Flexi RRH Band 66 (AWS1,3 and 4)" is another remote radio head on top of the tower, similar to what is shown on Petitioner's Exhibit 14. (Tr. 493.) A FRIJ Flexi RRH Band 66 (AWS1,3 and 4) is programmable, it has software, and is used as a part of T-Mobile's LTE

network. (Tr. 493–94.) This item appears 589 times (rows 27,432–27,461 of Petitioner's Exhibit 17) in the refund claims. (Tr. 494.)

95.

A "FRLB Flexi RRH 2TX 730m" is another remote radio head on top of the tower, similar to what is shown on Petitioner's Exhibit 14. (Tr. 494.) A FRLB Flexi RRH 2TX 730m is programmable, it uses computer software, and is a part of T-Mobile's LTE network. (Tr. 494–95.) This item appears 559 times (rows 27,462–28,020 of Petitioner's Exhibit 17) in the refund claims. (Tr. 495.)

96.

A "FXFC Flexi RF Module 1900 Triple 90W" is an LTE network radio, which uses the L1900 band. (Tr. 495.) It can be installed either on the tower or on the ground in the BTS cabinet. (Id.) A FXFC Flexi RF Module 1900 Triple 90W has software, it is programmable, and it is part of the LTE Network. (Tr. 496.) This item appears 801 times (rows 28,021–28,821 of Petitioner's Exhibit 17) in the refund claims.

97.

A "GSM/U1900 FXFB RF Module Kit" is a radio of the LTE network, with the full kit including mounting brackets and other items needed to operate it. (Tr. 496–97.) This has the capability to run either GSM or UL900—which is LTE. (Tr. 497.) Although it has compatibility for either, T-Mobile has it configured to use in the LTE network, based on the software commissioned and uploaded to this item. (Id.) A GSM/U1900 FXFB RF Module Kit has software, is programmable, and is used in T-Mobile's LTE network. (Tr. 498.) This item appears 1,638 times (rows 28,882–30,459 [sic corrected] of Petitioner's Exhibit 17) in the refund claims. (Tr. 498.)

98.

An "ODU 06L A GHz, 5930-6020MHz, LOW" is a radio used for microwave backhaul solutions, which supports backhaul transport. (Tr. 498–99.) An ODU 06L A GHz, 5930-6020MHz, LOW has software, processes data, and is used as part of T-Mobile's LTE network.

99.

There are 10 additional ODU radio types listed as 30 line items in the refund claims (rows 30,460–30,489 of Petitioner's Exhibit 17) in the refund claims. (Tr. 500.) Each one is a radio used for the same functionality—backhaul transport and vary based on the frequency range (low/high) and the spectrum band that they operate (.11B GHz/11C GHz/18 GHz). (Tr. 499– 500.) Each of ODU radios has software and hardware, is programmable, and is used as part of T-Mobile's LTE network. (Tr. 500–01.)

100.

A "RUS 01 B12 6-Pack kit" is a radio component that would be housed on the ground at the BTS cabinet, as shown in Petitioner's Exhibit 12. (Tr. 501.) A RUS radio unit has software, is programmable, and is part of T-Mobile's LTE network. (Tr. 502.) A RUS 01 B2 80W is the same type of radio but has a different variation of frequency band and power (80 watts). (Tr. 502–503.) The RUS radios appears 43 times (rows 30,507–30,549 of Petitioner's Exhibit 17) in the refund claims. (Id.)

101.

An "ANTENNA E911 L1 GPS 30 DBi (ACTIVE ANTEN" is a GPS antenna for T-Mobile's E911 safety network tied to the LTE network. (T. 504–05.) It is the cone-shaped GPS antenna that is shown Petitioner's Exhibit 10. (Tr. 505.) If a user dialed 911 through the LTE network, this antenna would provide the location of the user information to a first responder.

(Id.) An ANTENNA E911 L1 GPS 30 DBi (ACTIVE ANTEN is programmable because it is a GPS device, it is electronic, and is part of the assembly of hardware and software that makes up T-Mobile's LTE data network. (Id.) This item appears 1 time (row 18,593 of Petitioner's Exhibit 17) in the refund claims. (Id.)

102.

A "33 DEG QUAD POL 18Db W/ACU" is the material description for one type of antenna. (Tr. 506.) Nineteen antenna types appear 1,934 times (rows 17,095–18,592 of Petitioner's Exhibit 17) in the refund claims. (Tr. 507–10). The antennas have the same functionality but vary based on the beam width (33 Deg)—which refers to the angle of coverage an antenna can provide from that angle—and how many ports there are in the antenna—meaning how many radios and to which it can connect. (Tr. 506–11.) The various antennas are similar to those shown on Petitioner's Exhibits 15 and 16. The antennas are programmable and transmit and receive data over T-Mobile's LTE network. (Id.)

103.

Unlike the antennas described above, a "MR1718 Mini Repeater & Pwr Sup" is a smaller and passive antenna. (Tr. 511.) These antennae are referred to as "mini repeaters" because they strengthen signals so that the signals can reach between two macro sites that are too far apart in distance by receiving the signal from the primary site, replicating it and producing it to travel to the end user. (Id.) This item is programmed with software, but new software cannot be loaded on it. (Tr. 512.) This item appears 5 times (rows 18,594–18,598 of Petitioner's Exhibit 17) in the refund claims. (Id.)

104.

An "Optimer side-by-side dual polarized antenna" is an antenna used in the LTE network, but it is much smaller and dual polarized. (Tr. 512.) It transmits and receives signals to the other antennas described above. (Tr. 513.) It has computer software on it but is not programmable for new software. (Id.) It is used to transmit data as part of T-Mobile's LTE network. (Id.) This item appears 661 times (rows 18,599–19,529 of Petitioner's Exhibit 17) in the refund claims. (Id.)

105.

A "RAS FASB 8 Foot" is an LTE antenna, which has a radio integrated into the antenna. (Tr. 513–14.) It looks similar to the antennas in Petitioner's Exhibit 15 and 16, though much larger because it is 8 feet. (Tr. 514.) A RAS FASB 8 Foot has software, is programmable, and is used as part of T-Mobile's LTE network to transmit data. (Id.) This item appears 106 times (rows 19,260–19,365 of Petitioner's Exhibit 17) in the refund claims. (Tr. 514–15.)

106.

A "Sm Cell FAWT FZ HG eMIMO 1710-2170 2-pk" is an antenna for the LTE network small cell applications, such as traffic poles, light poles, or streetlights on the road. (Tr. 515.) The Sm Cell FAWT FZ HG eMIMO 1710-2170 2-pk is programmable and has software. (Id.) It is used as part of T-Mobile's LTE network. (Id.) This item appears 17 times (rows 19,366–19,382 of Petitioner's Exhibit 17) in the refund claims. (Tr. 515–16.) There are several other slight variations of similar small cell antennas which vary based on the directions of the antenna but have the same functionality. (Tr. 516–517.) These other small cell antennas appear 28 times (rows 19,383–19,410 of Petitioner's Exhibit 17) in the refund claims. (Tr. 514–15.)

107.

A "UMTS 65 DEGREE 1.3M QUAD W/2.0 ACU" is also an antenna, similar to antennas shown on Petitioner's Exhibit 16. (Tr. 517–18.) This type of antennas is programmable and is used part of T-Mobile's LTE network. (Tr. 518.) Although it is labeled "UMTS," Mr. Blassingill testified that he is familiar with how it is deployed, and it is part of the LTE network. (Id.) The similar antennas, all labelled as "UMTS 65 Degree" appear 837 times (rows 19,411–20,247 of Petitioner's Exhibit 17) in the refund claims. (Tr. 517–20.)

108.

A "WIDEBAND 1.5DBI INDOOR OMNI 1710-2500MHZ" is an antenna used in the LTE network as an indoor solution. (Tr. 520.) A WIDEBAND 1.5DBI INDOOR OMNI 1710-2500MHZ uses software, is programmable, and is used as part of T-Mobile's LTE network. (Id.) These items appear 8 times in the refund claims. (Rows 20,248–20,255 of Petitioner's Exhibit 17.)

109.

A "GSM ESMB Baseband Kit - up to 18 TRX" is a transport module that is contained in the base station equipment and plugs into ground-based radios and system modules. (Tr. 521.) A GSM ESMB Baseband Kit is an electrical item, and it has pre-loaded software. (Tr. 522.) Although it is labeled as "GSM," it is used in the LTE network because it is used for high-bandwidth transport. (Id.) This item, and the nearly identical GSM ESMB Baseband Kit - up to18 TRX appears 2,249 times (rows 20,256–22,504 of Petitioner's Exhibit 17) in the refund claims. (Tr. 521–24.) The difference in the two models is the number of ports for capacity. (Tr. 524.)

110.

There are 12 microwave dish and antenna types listed in the refund claims 81 times (rows 24,586–24,666 of Petitioner's Exhibit 17) such as the "1' Ant 23GHz Crgn & Stnd UBR220 Int" in the refund claims. (Tr. 524–27.) These microwave antennas are electronic, operated by software and transmit data through backhaul as part of T-Mobile's LTE network. (Tr.525–26.) The microwave antennas have the same functionality, but vary based on physical characteristics, such as size, or frequency. (Tr. 526–27.)

111.

There are 16 microwave radio types listed in the refund claims as 137 items (rows 24,667–24,803 of Petitioner's Exhibit 17) such as the "00HP 50 Ohm Termination, 11GHz" in the refund claims. (Tr. 527–32.) These microwave radios are part of the assembly of hardware connected with microwave backhaul, dishes, and antennas. (Tr. 528.) Microwave radios transmit and receive data and communicate directly with the cell site routers at adjoining cites to help transport signals. (Id.) Microwave radios are programmable, operate software, and are part of T-Mobile's LTE network. (Id.) The various models have the same functionality and but vary frequency and model names. (Tr. 527–32.)

112.

There are two types of assets listed as "Obsolete" material group items listed as 306 items in the refund claims (rows 24,804–25,109 of Petitioner's Exhibit 17) which are similar to other items discussed. (Tr. 534.) However, these items are in the "Obsolete" material group because the procurement group reclassifies them when these items are no longer available for ordering. (Tr. 534.) For example, a 7705 Cell Site Router SAR F 48 VDC is just a different variation of the other routers discussed. (Tr. 535.)

113.

There are 25 types of tower mounted amplifiers or "TMAs" listed in the refund claims as 1,881 items (rows 30,642–32,522 of Petitioner's Exhibit 17) such as the "6 PCS/AWS3 MULTI-DIPLEXER SUITECASE." (Tr. 536–38.) Examples of different kinds of tower mounted amplifiers are shown in Petitioner's Exhibits 11 and 15. (Tr. 537.) Tower mounted amplifiers amplify the RF signal that comes from the system modules arrayed on the ground to the radios up top and through the antenna to increase the capacity and strength of the signal. (Id.) The tower mounted amplifiers are electronic and are used as part of T-Mobile's high-speed LTE data network. (Id.)

114.

Batteries are used for backup power and there are various forms of battery strings with different voltage or different load capacity included within the refund claims. (Tr. 539.) The batteries are essential to T-Mobile's LTE data network and are part of the assembly of hardware and software used to transmit data. (Id.) Without the batteries, and in the event of the loss of commercial power, the LTE network would not operate. (Id.) There are 5 types of battery strings listed in the refund claims as 2,081 items (rows 22,505–24,585 of Petitioner's Exhibit 17) such as the "6 PCS/AWS3 MULTI-DIPLEXER SUITECASE." (Tr. 536–38.)

115.

There were no cables in the in the refund claims, as confirmed by Mr. Barreca. (Tr. 1099 ("I didn't find any cable items, no, sir.").) Mr. Blassingill did not describe cable in his equipment and also explained that T-Mobile leases cable/fiber and does not purchase it. (Tr.424– 25.)

116.

At trial, Mr. Blassingill testified that each unique piece of equipment is either itself a computer or part of the organized assembly of hardware and software that comprises T-Mobile's LTE network. (See Tr. 435-538.) Likewise, T-Mobile's expert witness, Dr. Ralph, opined that all of the equipment is computer equipment. (See Tr. 638-639, Joint Ex. 21.) The classification of the equipment has been a dramatic point of disagreement between the parties, with the Department's expert, Mr. Barreca, who found that much of the equipment was computerized but testified that he did not consider any of the listed material descriptions to be computers. (Tr. 1086; Joint Ex. 19 at 22.)

e. The Department's Review of The Equipment

i. The Department's Application of the High-Tech Exemption

117.

Mr. Cooper was promoted to Assistant Director of Audits shortly after July 2016, but was acting director until his official promotion. (Tr. 207.)

118.

Once Mr. Cooper was promoted to Assistant Director of Audits, he changed the Department's position with respect to the application of the high-tech exemption and provided new, internal and informal guidance to deny the refund claims. (Petitioner's Ex. 22; Tr. 883.) The Department issued no public guidance regarding Mr. Cooper's new guidance. (Id.)

119.

Mr. Cooper held an informal "training" phone call with audit managers, sometime in the early part of 2016. (Tr. 270; Tr. 292.) Mr. Cooper later changed his characterization of the call

with the audit managers and claimed that the call was not a training because it was informal, lasting maybe five to ten minutes. (Tr. 271.)

120.

Mr. Cooper stated that all of the Department's sales tax audit managers were incorrectly reviewing the exemptions, and that none of them understood the nuances of equipment. (Tr. 265 ("What I discovered was that most of the auditors at the Department were not really familiar with telecom equipment.").) During his deposition, Mr. Cooper explained that all the sales tax auditors believed that the Equipment qualified, until he had conducted his "training." (Tr. 263.)

121.

Prior to his call with the audit managers, Mr. Cooper stated that at least some auditors would have approved refund claims. (Tr. 296.) Mr. Cooper agreed that before his "training" and promotion, the Department was approving the claims, but after the promotion they were not. (Tr. 270.)

122.

Mr. Cooper acknowledges that there were taxpayers, including T-Mobile, who were not aware of the Department's new position. (Tr. 297.)

123.

In his informal "training" call, Mr. Cooper "asked [the auditors] to take another look at the claims and see if they found the same types of equipment that I found in mine." (Tr. 270.) Mr. Cooper stated that he had reviewed two other high-tech exemption refund claims, but not T-Mobile's. (Tr. 207–208.)

ii. The Department did not Review the Equipment

124.

Mr. Cooper never reviewed T-Mobile's refund claim. (Tr. 207–208, 262.) Mr. Cooper [mistakenly] believed that most of the equipment is located at the mobile telecommunications switching office. (Tr. 250.)

125.

Although Mr. Cooper did not review T-Mobile's claim, he suggested to Ms. Lozano, an audit manager from the Department instructed to review the refund claims, that certain equipment does not qualify for the high-tech exemption: antennas mounted on top of cell phone towers, the equipment that's located at the base of the towers, switching equipment, batteries. (Tr. 213.)

126.

Mr. Cooper's informal training session and his conclusions about the equipment were based on other carriers' equipment with which Mr. Cooper claimed to be familiar. The Department did not make an effort to distinguish the claims of different carriers, as they believed it was all the same equipment. (Tr. 208–209.) Mr. Cooper explained this belief was made, not based on the types of equipment, but based on the functions performed by the equipment. (Tr. 209–210.) Mr. Cooper could not recall ever having seen what was included in T-Mobile's refund claims but nonetheless concluded it was the same as the equipment he had reviewed in prior audits. (Tr. 266.)

127.

Mr. Cooper told Ms. Lozano to look for model numbers on the spreadsheets and go to the manufacturer's website to see if any of the equipment qualifies for the exemption. (Tr. 211– 214.) Mr. Cooper never verified what work Ms. Lozano actually did to review the refund claim before

denying the 2012 Refund claim. (Tr. 214.) Nothing produced by the Department in discovery reflects any research conducted by Ms. Lozano.

128.

Typically, in doing a refund claim audit, auditors would "make a little notation on the spreadsheet as to why we think it doesn't qualify." (Tr. 216.) T-Mobile never received such a spreadsheet, and the Department has never produced any such spreadsheet. (Tr. 207–208, 262.) As previously noted, the Department's repeated rationale for the denial of T-Mobile's claim was that the equipment was "telephone central office or other voice data transport technology." (Joint Ex. 4; Tr. 242, Tr. 854–55.)

129.

Regarding voice transmission, Mr. Cooper explained that whether equipment is capable is not the test, but whether "the Department of Revenue believes the taxpayer's actual use is, not what the capability is." (Tr. 322.) He reiterated that even if he had previously used the phrase "capable," what he meant was the equipment is not only capable, "but the department felt that it was being used for voice transmissions." (Tr. 323.) "So the department looks at what was the computer used for by the taxpayer. And if we know that it was used for voice, then we don't allow it." (Tr. 350.) At the trial, Mr. Cooper testified that he was not aware that T-Mobile's LTE network had no voice usage from the time T-Mobile first began building the network until June 2014. Mr. Cooper further indicated that this knowledge would have led him to a different conclusion regarding T-Mobile's refund claims.

iii. Mr. Barreca Did Not Review the Equipment

130.

Mr. Barreca is a property tax appraiser who has not worked as an engineer for decades. (Tr. 915–16; Joint Ex. 20A.) Mr. Barreca's business is made up, in large part, of helping state and local governments sustain property tax assessments. (Tr. 917.)

131.

The Department engaged Mr. Barreca as a consultant to "opine as to whether the claimed tax-exemption equipment meets, from an engineering perspective, the qualifying equipment-criteria specified in the Georgia Statute(s)." (Joint Ex. 19 at 2; Tr. 1080–81.)

132.

To aid in his testimony, Mr. Barreca reformatted Joint Exhibits 23 through 27 in such a way to assist the court in reviewing the equipment, by resorting the data presented therein. (Tr. 1023–24.) When looking at specific material descriptions on Joint Exhibits 23 through 27, Mr. Barreca testified that he did not consider any of the material descriptions listed to be computers. (Tr. 1086; Joint Ex. 19 at 22.)

133.

Mr. Barreca testified for each item of equipment he was asked about, that they "could support" 2G, 3G, and 4G. (Tr. 1032, 1034, 1036, 1038, 1040, 1044, 1046, 1050, 1054.) However, if T-Mobile bought a license and configured equipment with LTE only software, the equipment could not have been used for 2G and 3G capability. (Tr. 1170.)

134.

Mr. Barreca did not know whether any particular piece of equipment in the refund claims was configured for LTE only or 3G or 2G. (Tr. 1160–61.) Mr. Barreca also testified that he has

"no idea" how the hardware is actually being used and has no way of knowing that. (Tr. 1171.) Mr. Barreca explained that he did know what kind of software would be installed on the equipment and that the contracts for these are long and complicated. (Tr. 1063–1064.)

135.

Mr. Barreca did not look at or request these contracts in doing his review, which he characterized as very long and sophisticated. (Tr. 1170.) He concluded that the software could "potentially" be used for processing calls but did not know whether that capability was actually licensed or actually used. (Id.)

136.

Mr. Barreca claimed that the material group 1Unode B is the term for 3G technology and the U standard for UMTS. (Tr. 1055.) However, Mr. Barreca later admitted that, as the material groups were created by T-Mobile, there are no external rules regulating these classifications, and that T-Mobile does use the term "1Unode B" for 4G (LTE) technology. (Tr. 1153–54.)

IV. Conclusions of Law

The Tribunal hereby makes the following conclusions of law.

A. Standard of Review

1.

It is well-settled that the burden of proof is on the Petitioner to prove that it is entitled to a refund of taxes illegally collected. Hawes v. Bigbie, 123 Ga. App. 122 (1970); Hawes v. Smith, 120 Ga. App. 158 (1969). It is likewise well-settled that "[t]axation is the rule, and exemption from taxation is the exception." Georgia Dep't of Revenue v. Owens Corning, 283 Ga. 489, 490 (2008) (quoting Collins v. City of Dalton, 261 Ga. 584, 585-586 (1991)).

2.

"[T]he interpretation of a statute by an administrative agency which has the duty of enforcing or administering it is to be given great weight and deference." See, e.g., Owens Corning, 283 Ga. at 490 (citing Kelly v. Lloyd's of London, 255 Ga. 291, 293 (1985)). While the Tribunal "is 'not bound to blindly follow' an agency's interpretation, we defer to an agency's interpretation when it reflects the meaning of the statute and comports with legislative intent." See Ctr. for a Sustainable Coast v. Coastal Marshlands Prot. Comm., 284 Ga. 736, 741 (2008) (quoting Schrenko v. DeKalb Cty. Sch. Dist., 276 Ga. 786, 791 (2003)). In other words, deference to an agency's interpretation is appropriate when the statute is ambiguous and when the agency's interpretation is reasonable.[5] Finally, "[s]tatutes should be read according to their natural and most obvious import of the language, without resorting to subtle and forced constructions to limit or extend their operation." ChoicePoint Servs. v. Graham, 305 Ga. App. 254, 257 (2010).

B. The Statute at Issue

3.

O.C.G.A. § 48-8-3(68) provides that sales and use taxes levied or imposed by Chapter 8 (Sales and Use Taxes), Article 1 (State Sales and Use Tax) of Title 48 (Revenue and Taxation) of the Georgia Code shall not apply to:

> (A) The sale or lease of computer equipment to be incorporated into a facility or facilities in this state to any high-technology company classified under North American Industrial Classification System code 51121, 51331, 51333, 51334,

---

[5] See David Shipley, "The Chevron Two-Step in Georgia's Administrative Law" (2012), available at: https://digitalcommons.law.uga.edu/fac_artchop/750. Professor Shipley summarizes Georgia's approach to deference as follows:

> On step one Georgia's courts utilize traditional tools of statutory construction to determine whether or not a statute is plain or ambiguous. In the event the statute is not clear or if the legislature's intent is not evident in the governing statute then Georgia's courts, on step two, determine whether the agency's interpretation of the ambiguous statute is reasonable.

Id. at 64.

> 51421, 52232, 54133, 54171, 54172, 334413, 334611, 513321, 513322, 514191, 541511, 541512, 541513, or 541519 where such sale of computer equipment for a calendar year exceeds $15 million. . . .
>
> (C)(i) As used in this paragraph, the term "computer equipment" means any individual computer or organized assembly of hardware or software, such as a server farm, mainframe or midrange computer, mainframe driven high-speed print and mailing devices, and workstations connected to those devices via high bandwidth connectivity such as a local area network, wide area network, or other data transport technology that performs one of the following functions: storage or management of production data, hosting of application systems development activities, or hosting or applications systems testing.
>
> (ii) The term shall not include:
>
> (I) Telephone central office equipment or other voice data transport technology; or
> (II) Equipment with imbedded computer hardware or software which is primarily used for training, product testing, or in a manufacturing process.

O.C.G.A. § 48-8-3(68)(A), (C). It is undisputed that T-Mobile is a qualifying high-technology company under the statute. It purchased more than $15 million of equipment and software for each of the years in the refund claims, and sales taxes paid on these purchases were remitted to the Department. Accordingly, the only issues for the Tribunal to determine are (1) whether the equipment meets the definition of "computer equipment," and (2) whether, even if the equipment is computer equipment, it is nonetheless excluded from the exemption by virtue of being "telephone central office equipment or other voice data transport technology."

a. Background

4.

In 2002, the Georgia General Assembly amended O.C.G.A. § 48-8-3(68) to its current form through House Bill 1441. Prior to this amendment, the entirety of subsection (68)(C) read as follows:

> As used in this paragraph, the term 'computer equipment' means any individual computer terminal or organized assembly of hardware, including, but not limited to, central processing units and related peripheral equipment such as scanners, printers, electronic data storage devices, memory chips, data transmission equipment, and software products, including operating systems and library and maintenance routines.

O.C.G.A. § 48-8-3(68)(C)(2001).

5.

Notably, the definition of computer equipment in the current version of the statute is much broader than the definition pre-amendment. Also of note, prior to amendment, the exemption contained no exceptions for telephone central office equipment or for other voice data transport technology.

6.

With this background in mind, the Tribunal will take each of these three terms (computer equipment, telephone central office equipment, and other voice data transport technology) in turn, in order to determine the correct meaning of each within the context of the statute and the extent to which deference to the Department's interpretation of these terms is appropriate.

b. Computer Equipment

7.

The Department urges the Tribunal to defer to its interpretation of the term computer equipment. However, the Tribunal finds that such deference is not warranted, as the definition of computer equipment provided in O.C.G.A. § 48-8-3(68) is not ambiguous.

8.

"In all interpretations of statutes, the courts shall look diligently for the intention of the General Assembly, keeping in view at all times the old law, the evil, and the remedy." O.C.G.A.

§ 1-3-1(a). When searching for this intention, courts "must presume that the General Assembly means what it says and says what it means. As our Supreme Court has instructed, the search for legislative intent must begin with the words of the statute, and, if those are clear and unambiguous, the search must also end there." Northeast Atlanta Bonding Co. v. State, 308 Ga. App. 577-78 (2011). Further, in statutory interpretation, "the ordinary signification shall be applied to all words, except words of art or words connected with a particular trade or subject matter, which shall have the signification attached to them by experts in such trade or with reference to such subject matter." O.C.G.A. § 1-3-1(b).

9.

The statute at issue defines "computer equipment" as "any individual computer or organized assembly of hardware or software," and then provides examples of qualifying computer equipment, signified by the phrase, "such as." See O.C.G.A. § 48-8-3(68)(C); see also New Amsterdam Cas. Co. v. McFarley, 191 Ga. 334, 346 (1940) (explaining that when a statute lists specific items by example, such items should not be read to exclude other items not expressly mentioned). That is, computer equipment includes both individual computers and organized assemblies of hardware and software that themselves are not individual computers but are nonetheless integral parts of a computerized system.

10.

A common dictionary definition (from Merriam-Webster) of the word "computer" is "one that computes" or "a programmable usually electronic device that can store, retrieve, and process data." (Petitioner's Ex. 20.) There is no indication that the phrase "computer" should be treated as a term of art, rather than its commonly understood definition. Even if the word "computer" were to be treated as a term of art, T-Mobile's expert witness, Dr. Ralph, nonetheless agreed that

the dictionary definition provided comports with his technical understanding of the term. (Tr. 637-638.)

11.

The Department's witness, Mr. Cooper, likened the term "organized assembly of hardware" to "a group of microprocessors on a motherboard that's connected via circuitry and operated by some type of software. . . ." (Tr. 220.) Dr. Ralph also provided his expert opinion that "an assembly of hardware or software" could also be called "an embedded system" and that the LTE network is an example of such a system, noting that "[m]ost communications systems these days are a combination of hardware and software managed by computers that are considered a complete computer system." (Tr. 639.)

12.

Finally, if any ambiguity remained as to the meaning of "computer equipment," the General Assembly provided an extensive, non-exclusive list of qualifying equipment to guide the Tribunal's determination.

13.

Notwithstanding the statute's plain language, the Department's position is not reasonable and would not be entitled to deference, even if the statute were ambiguous.

14.

Before looking to the substance of the Department's argument, it must be noted that the Department's position as to whether the equipment constitutes "computer equipment" has been inconsistent. During the administrative protest of this case, Mr. Cooper's deposition, and at times at trial, the Department stated the refund claims were denied not because the equipment was "computer equipment" but because it was "telephone central office equipment or other voice data

transport technology." (Joint Ex. 4; Tr. 117, 854-55.) Mr. Cooper also admitted that equipment that sends and directs data over the internet could qualify as computer equipment and that equipment that operates software and converts data transmission through the internet qualifies as computer equipment. (Tr. 256.) Likewise, in various briefs, the Department also admitted that at least some of the equipment is "computer equipment." These statements stand in contrast to the proffered opinion of the Department's expert, Mr. Barreca.

15.

The Department asserts that, to be computer equipment, the equipment

> must be: (1) hardware or software like a "server farm, mainframe or midrange computer, mainframe driven high-speed print and mailing devices, and workstations connected to those devices"; (2) connected together "via high bandwidth connectivity such as a local area network, wide area network, or other data transport technology"; and (3) must "perform one of the following functions: storage or management of production data, hosting of production applications, hosting of application systems development activities, or hosting of applications systems testing."

(Respondent's Response to Petitioner's Post-Trial Brief, p. 24.) This interpretation ignores the plain language of the statute, distorting it instead to create a three-part, conjunctive test. If the General Assembly wished to implement such a test, it would have done so when the statute was amended in 2002. Rather, the General Assembly defined computer equipment to mean "any individual computer or organized assembly of hardware or software," then provided numerous examples. If these examples were meant to be exclusive or conjunctive, the General Assembly would have said so; instead, the legislature employed the phrases "any" and "such as," both of which indicate a broad and inclusive definition.

16.

The Department also offered an alternative definition of the term "computer equipment," based on Mr. Barreca's report and testimony: "the terms 'computer equipment' and 'individual computer' as used in the statute are synonymous with the concept of a standalone, general purpose computer. . . ." (Joint Ex. 19 at 21.) Mr. Barreca's report also opines that "[d]evices with embedded microprocessor (i.e., computer chips) whose primary function is to perform complex processing tasks" do not constitute computer equipment. Id. A piece of equipment may be highly computerized, but, according to Mr. Barreca, it will not qualify as computer equipment if it is "not [a] standalone computer[], workstation[], or an assembly of computers." Id.

17.

The definition provided by Mr. Barreca bears a striking resemblance to O.C.G.A. § 48-8-3(68)(C) pre-amendment. This cannot be the intent of the General Assembly, as it would render the 2002 amendment meaningless. Instead, the Tribunal reads HB 1441 to mean that the legislature intended to adopt a broader understanding of "computer equipment," and that this definition expanded the term's meaning far enough that even telephone central office equipment and other voice data transport technology would constitute "computer equipment." As the Department's interpretation would render the 2002 amendment mere surplusage, it cannot be afforded deference, even if the Tribunal had concluded that the statute is ambiguous.

18.

The functions of each unique asset type, and their numerous variations, have been detailed at length, *supra*. Each asset type is, at a minimum, an integral part of T-Mobile's LTE network, which itself is an assembly of hardware and software. Further, the majority of the unique assets are themselves computers: electronic, run by software, and performing functions such as storing,

retrieving, and processing data. Accordingly, the Tribunal is persuaded, based on the statute's plain language, that each piece of equipment is computer equipment for the purposes of the high-tech exemption.

c. Telephone Central Office Equipment

19.

Regarding the phrase "telephone central office equipment," the Tribunal again finds that the plain language of the statute controls and that deference is neither warranted nor necessary.

20.

As noted previously, terms of art "shall have the signification attached to them by experts in such trade or with reference to such subject matter." See O.C.G.A. § 1-3-1(b). The phrase "central office" is such a term of art, dating back to the 19th century. (Tr. 641, 649.)

21.

As discussed previously, the definition of the central office, relied upon by the Department and generally agreed to be accurate is as follows:

> In almost every neighborhood there is a windowless building that houses the switching equipment that connects your telephone to your neighbor's telephone or routes your call to another central office for long distance calls. This building is called the central office. The central office has switching equipment that can switch calls locally or to long-distance carrier phone offices.

(Joint Ex. 15; Tr. 246, 366-67, 642.)

22.

The term "central office" "goes way back to the wire line carriers and the buildings where all the copper lines came together and the switching occurred." (Tr. 248.) The central office serves as an aggregation point for local exchange service, connecting different locations through wiring to land lines. (Tr. 39, 648.) There is no ambiguity as to its definition.

23.

The Tribunal presumes that the General Assembly meant what it said and said what it meant when it used the well-understood phrase "telephone central office equipment." See Deal v. Coleman, 294 Ga. 170, 172-73 (2013). Nonetheless, the Department urges the Tribunal to define "telephone central office equipment" as not only equipment used in a central office, but also as any equipment used to perform similar functions to those performed at a central office, such as call routing and switching, regardless of the equipment's location. (Joint Ex. 19 at 5, 21.)

24.

But the legislature only excluded "telephone central office equipment," which it intended to mean exactly that: equipment used by local exchange carriers to provide wireline service, housed in a central office.

25.

The parties agree, and the evidence amply shows, that T-Mobile does not maintain a telephone central office. Accordingly, the equipment claimed by T-Mobile in its refund claims cannot be excluded from the definition of computer equipment on this basis.

d. Other Voice Data Transport Technology

26.

Of the three terms discussed herein, the phrase "other voice data transport technology" is the most vexing. All of the witnesses in this case testified that there is no commonly understood definition of the phrase "other voice data transport technology." (Tr. 39, 251, 642.) As Mr. Cooper succinctly put it, "there is no definition in the statutes, and there's no definition in the telecom glossary, and there's no common language definition." (Tr. 251.) The Department has not issued

guidance as to its meaning, and it is not a known term of art. Therefore, the phrase is ambiguous and requires construction to be understood.

27.

The Department has consistently asserted that the mere capability to transmit voice suffices to exclude the equipment as other voice data transport technology, notwithstanding the fact that T-Mobile's LTE network was, in fact, not even capable of providing voice services until June 2014, well after the deployment of the equipment in the 2012 and 2013 refund claims. In its *Response to Petitioner's Post-Trial Brief*, the Department sets forward a "plain-meaning interpretation" of the term by cobbling together the dictionary definitions of the words voice, data, transport, and technology to ultimately define "voice data transport technology" as "the technical capability of transferring vocal sounds in digital form from one place to another." (Respondent's Response to Petitioner's Post-Trial Brief, pp. 10-11.) The Department's expert witness provided a technical definition of "voice data transport technology" as "the transmission of digitized voice signals." (Tr. 1008.) (This position, of course, stands in contrast with Mr. Cooper's opinion, as the agency representative testifying at trial, that actual use is the determinative factor. (See Tr. 232-33.))

28.

However, given that the term "other voice data transport technology" is not apparently used anywhere outside of the statute at issue, the Tribunal remains unconvinced that the text of the statute speaks for itself. The question before the Tribunal, then, is: is the Department's proffered interpretation reasonable?

29.

The Tribunal answers this question in the negative. The Department's position that the mere capability to "transfer vocal sounds" makes the equipment at issue "other voice data transport

technology" is an implausible construction of the statute that eviscerates the exemption entirely. All witnesses at trial, including the Department's representative and expert, agreed that all properly programmed computers are capable of transmitting voice. Mr. Cooper stated that "all routers and servers are capable of transmitting digitized voice" and that a laptop (i.e., an example of an individual computer) is capable of transmitting voice. (Tr. 348.) The Department's expert, Mr. Barreca further opined that any computer that has "some kind of communication port, then they can process the voice information to some extent." (Tr. 1140-43.) Indeed, Mr. Barreca could not think of any example that is connected by broadband connectivity that is not capable of voice transmission.

30.

The Tribunal must avoid construction of statutes that would produce an absurd result not contemplated by the legislature. State v. Fielden, 280 Ga. 444, 448 (2006); State v. C.S.B., 250 Ga. 261, 263 (1982). As discussed previously, computer equipment is defined as "individual computer or organized assembly of hardware or software." Whether applying the Department's narrower understanding of the term or the interpretation adopted by the Tribunal, it appears that all computer equipment has, at a minimum, the capability of transmitting voice and, by the Department's logic, could not qualify for the exception by virtue of being "other voice data transport technology." Construing a statutory sales tax exemption so narrowly that no transactions qualify would produce the absurd result of rendering the provision at issue meaningless. If the legislature had intended to repeal O.C.G.A. § 48-8-3(68), it would have done so on its face, not through the creation of an exception to the exemption.

31.

On the other hand, the taxpayer urges the Tribunal to adopt a primary purpose test in order to determine that the equipment is not "other voice data transport technology." This position is also misplaced. As the Supreme Court of Georgia explains:

> In our search for the meaning of a particular statutory provision, we look not only to the words of that provision, but we consider its legal context as well. After all, context is a primary determinant of meaning. For context, we may look to the other provisions of the same statute, the structure and history of the whole statute, and the other law – constitutional, statutory, and common law alike – that forms the legal background of the statutory provision in question.

FDIC v. Loudermilk, 295 Ga. 579, 588 (2014) (citing May v. State, 295 Ga. 388, 391-92 (2014)). Notably, the exemption at issue stands in contrast to other sales tax exemptions in Title 48, Chapter 8, which do have "primary use" or "substantial use" tests. Compare O.C.G.A. § 48-8-3(68) with O.C.G.A. § 48-8-3.2 (manufacturing machinery) and 48-8-3.3 (agricultural machinery). If the General Assembly intended to apply a primary use test, it would have done so, as it has for other sales tax exemptions.

32.

Rather, the Tribunal is guided by the canon of construction *noscitur a sociis*, which provides that "the meaning of words or phrases in a statute may be ascertained 'from others with which they are associated and from which they cannot be separated without impairing or destroying the evident sense they were designed to convey in the connection used.'" Burke v. State, 208 Ga. App. 446 (1993) (internal quotations and citations omitted); Anderson v. Se. Fid. Ins. Co., 251 Ga 556, 556 (1983) ("Words, like people, are judged by the company they keep.") Accordingly, the meaning of the phrase "other voice data transport technology" must be construed in connection with "telephone central office equipment." If the two phrases were not meant to be

understood in relation to each other, with some sort of fundamental commonality, they would not be contained within the same subsection. Rather, they would be enumerated separately, much the way that O.C.G.A. § 48-8-3(68)(C)(ii)(II) is. This conclusion is reinforced by the word "other" linking the phrases "telephone central office equipment" and "voice data transport technology," indicating a relationship between the two terms, where "telephone central office equipment" is an explicit example of what is meant by "voice data transport technology."

33.

Furthermore, statutory language is to be interpreted as of the time of its enactment. See Warren v. State, 294 Ga. 589, 589 (2014). At the time of enactment, the term telephone central office equipment had a well-established, understood meaning. In reading the two terms together, the Tribunal finds that the most natural interpretation of the statutory provision is that "other voice data transport technology" means technology, other than that housed in a central office, that is utilized to provide wireline service by a local exchange carrier, such as digital switching.

34.

This reading likewise tracks with the overall development of technology at that time. At the time of enactment, the naissance of the LTE network was still approximately a decade away. It is undisputed that the development of 4G signified a major technological shift to a new data-centric, internet-based network. The legislature simply could not have contemplated the exclusion of 4G technology, when such technology did not exist (and indeed was many years away from existing) at the time of HB 1441's adoption.

35.

Regardless of the capability of T-Mobile's network from June 2014 onward of transmitting voice calls (and regardless of the fact that these calls make up a small fraction of network usage

currently), the Tribunal finds that the equipment cannot be other voice data transport technology. Even to the extent that T-Mobile does transmit voice calls, these calls nonetheless utilize an entirely new network, relying on new technology, completely unrelated to services provided by wireline local exchange carriers.

V. Decision

For the reasons stated above, the equipment claimed by T-Mobile in its refund claims for tax years 2012 through 2016, constitutes computer equipment under O.C.G.A. § 48-8-3(68), and the equipment is not telephone central office equipment or other voice data transport technology.

Accordingly, the Department's denial of T-Mobile's Refund claims is **REVERSED**. The Department is to take all actions necessary consistent with the payment of refund claims pursuant to this order.

SO ORDERED, this 6th day of August, 2020.

James E. O'Neal

HONORABLE LAWRENCE E. O'NEAL, JR.
CHIEF JUDGE
GEORGIA TAX TRIBUNAL