RADIO TEST REPORT
ETSI EN 300 440 V2.2.1 (2018-07)

Product :	Smartphone
Trade Mark :	CUBOT
Model Name :	A10
Family Model :	N/A
Report No. :	S24040904103005

Prepared for

Shenzhen Huafurui Technology Co., Ltd.

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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name ....: Shenzhen Huafurui Technology Co., Ltd.
Address ....: Unit 601-03, 6/F, Block A, Building 1, Ganfeng Technology Building, No. 993 Jiaxian Road, Xiangjiaotang Community, Bantian Street, Longgang District, Shenzhen, P.R. China
Manufacturer's Name ....: Shenzhen Huafurui Technology Co., Ltd.
Address ....: Unit 601-03, 6/F, Block A, Building 1, Ganfeng Technology Building, No. 993 Jiaxian Road, Xiangjiaotang Community, Bantian Street, Longgang District, Shenzhen, P.R. China

Product description

Product name..........................: Smartphone
Trademark ....: CUBOT
Model and/or type reference : A10
Family Model ....: N/A
Standards ....: ETSI EN 300 440 V2.2.1 (2018-07)

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the of article 3.2 of the Directive 2014/53/EU requirements. And it is applicable only to the tested sample identified in the report.
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Test Sample Number ....: S240409041003
Date of Test ....
Date (s) of performance of tests.............: Apr 09, 2024 ~ May 13, 2024
Date of Issue..: May 13, 2024
Test Result...: **Pass**

Prepared By :	Reviewed By :	Approved By :
Allen Liu	Aaron Cheng	Alex Li
Allen Liu (Project Engineer)	Aaron Cheng (Supervisor)	Alex Li (Manager)

Shenzhen NTEK Testing Technology Co., Ltd. NTEK Report Seal

Table of Contents

Page

1 . SUMMARY OF TEST RESULTS 7
1.1 TEST FACILITY 8
1.2 MEASUREMENT UNCERTAINTY 8
2 . GENERAL INFORMATION 9
2.1 GENERAL DESCRIPTION OF EUT 9
2.2 TEST CONDITIONS 10
2.3 DESCRIPTION OF TEST CONDITIONS 11
2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED 12
2.5 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE) 13
2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS 14
3 . EQUIVALENT ISOTROPICALLY RADIATED POWER (E.I.R.P.) 15
3.1 APPLICABILITY 15
3.2 LIMITS 15
3.3 GENERAL REQUIREMENTS 15
3.4 TEST PROCEDURES 15
3.4.1 FOR NON SPREAD SPECTRUM TRANSMITTERS 15
3.4.2 FOR ALL OTHER TRANSMITTER BANDWIDTHS 16
3.5 TEST SETUP LAYOUT 16
3.6 EUT OPERATION DURING TEST 16
3.7 TEST RESULT FOR -6 DB BANDWIDTH 17
3.8 TEST RESULT FOR E.I.R.P 18
4 . PERMITTED RANGE OF OPERATING FREQUENCIES 19
4.1 APPLIED PROCEDURES / LIMIT 19
4.2 TEST PROCEDURES 19
4.3 TEST SETUP LAYOUT 19
4.4 EUT OPERATION DURING TEST 19
4.5 TEST RESULTS 20
5 . UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN 23
5.1 APPLIED PROCEDURES / LIMIT 23
5.2 MEASURING INSTRUMENTS AND SETTING 23
5.3 TEST PROCEDURES 23
5.4 TEST SETUP LAYOUT 24

Table of Contents Page

5.5 EUT OPERATION DURING TEST 24
5.6 RESULTS OF STANDBY MODE SPURIOUS EMISSIONS 24
5.7 TEST RESULTS 25
6 . DUTY CYCLE 27
6.1 APPLICABILITY AND DESCRIPTION 27
6.2 LIMITS 27
6.4 METHOD OF MEASUREMENT 27
6.5 TEST SETUP 28
6.6 TEST RESULTS 28
7 . SPURIOUS EMISSIONS – RX 29
7.1 APPLIED PROCEDURES / LIMIT 29
7.2 MEASURING INSTRUMENTS AND SETTING 29
7.3 TEST PROCEDURES 29
7.5 TEST SETUP LAYOUT 29
7.6 EUT OPERATION DURING TEST 29
7.7 TEST RESULTS 30
8 . ADJACENT CHANNEL SELECTIVITY 31
8.1 APPLICABILITY 31
8.2 LIMITS 31
8.3 METHODS OF MEASUREMENT 31
8.4 TEST SETUP LAYOUT 32
8.5 TEST RESULTS 32
9 . BLOCKING OR DESENSITIZATION 33
9.1 APPLICABILITY 33
9.2 LIMITS 33
9.3 TEST PROCEDURES 33
8.4 TEST SETUP LAYOUT 34
9.4 TEST RESULTS 35
10 . TEST RESULTS 42
10.1 DUTY CYCLE 42
10.2 -6DB EMISSION BANDWIDTH 50
10.3 FREQUENCY RANGE 58
10.4 OCCUPIED CHANNEL BANDWIDTH 65

Table of Contents **Page**

10.5 RF OUTPUT POWER 73
11 . EUT TEST PHOTO 82
SPURIOUS EMISSIONS MEASUREMENT PHOTOS 82
APPENDIX-PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS

Revision History

Report No.	Version	Description	Issued Date
S24040904103005	Rev.01	Initial issue of report	May 13, 2024

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:
ETSI EN 300 440 V2.2.1 (2018-07)

Clause	Description of Test Item	Remarks	Results
Transmitter Parameters			
4.2.2	-6 dB channel bandwidth	Conducted	Pass
4.2.2	Effective isotropic radiated power	Conducted	Pass
4.2.3	Permitted range of operation frequencies	Conducted	Pass
4.2.4	Unwanted emissions in the spurious domain	Radiated	Pass
4.2.5	Duty cycle	Conducted	Pass
4.2.6	Additional requirements for FHSS equipment	Conducted	N/A
Receiver Parameters			
4.3.3	Adjacent channel selectivity(For Receiver category 1)	Conducted	N/A
4.3.4	Blocking or desensitization(For Receiver category 1,2,3)	Conducted	Pass
4.3.5	Spurious emissions(For Receiver category 1,2,3)	Radiated	Pass

Note: The antenna gain provided by customer is used to calculate the EIRP result. NTEK is not responsible for the accuracy of antenna gain parameter

1.1 TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd.
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FCC Registered No.: 463705 IC Registered No.:9270A
CNAS Registration No.:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Radio frequency	±1 x 10-7
2	RF power (conducted)	±2,5 dB
3	Radiated emission of transmitter, valid to 26,5 GHz	±6 dB
4	Radiated emission of transmitter, valid between 26,5 GHz and 66 GHz	±8 dB
5	Radiated emission of receiver, valid to 26,5 GHz	±6 dB
6	Radiated emission of receiver, valid between 26,5 GHz and 66 GHz	±8 dB
7	Temperature	±1℃
8	Humidity	±5 %
9	Voltage (DC)	±1 %
10	Voltage (AC, < 10 kHz)	±2 %
NOTE: For radiated emissions above 26,5 GHz it may not be possible to achieve measurement uncertainties complying with the levels specified in this table. In these cases alone it is acceptable to employ the alternative interpretation procedure specified in EN 300440 V2.2.1 clause 5.9.1.		

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smartphone
Trade Mark	CUBOT
Model Name	A10
Family Model	N/A
Model Difference	N/A
Product Description	Operation Frequency: 5745-5825 MHz for 802.11a/n20/ac20; 5755-5795 MHz for 802.11n40/ac40; 5775MHz for 802.11 ac80; Data Rate: 802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS7; 802.11ac(VHT20/ VHT40/VHT80): NSS1, MCS0-MCS9, NSS2 Modulation: OFDM with BPSK/QPSK/16QAM/64QAM/256QAM Channel No.: 5 channels for 802.11a/n20/ac20 in the 5745-5825MHz band ; 2 channels for 802.11 n40/ac40 in the 5755-5795MHz band ; 1 channels for 802.11 ac80 in the 5775MHz band ; Antenna Designation: PIFA Antenna Antenna Gain(Peak): 1.51 dBi
Receiver category	☐ Category 1: Highly reliable SRD communication media; e.g. serving human life inherent systems (may result in a physical risk to a person). ☐ Category 2: Medium reliable SRD communication media e.g. causing inconvenience to persons, which cannot simply be overcome by other means. ☒ Category 3: Standard reliable SRD communication media e.g. Inconvenience to persons, which can simply be overcome by other means (e.g. manual).
Channel List	Refer to below
Adapter	Adapter 1: Model: QZ-01001EA00 Input: AC100-240V~50/60Hz 0.3A Output: 5.0V⎓2.0A (10.0W) Adapter 2: Model: HJ-0502000W2-EU Input: AC100-240V~50/60Hz 0.3A Output: 5.0V⎓2.0A 10.0W Output Power: 10.0W
Battery	DC 3.87V, 5100mAh, 19.74Wh
Rating	DC 3.87V from battery or DC 5V from adapter
Hardware Version	Q12D V2.0
Software Version	CUBOT_A10_E045C_V01

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Channel list:

Frequency and Channel list for 802.11a/n/ac(20 MHz) band IV (5745-5825MHz):

802.11a/n/ac(20 MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

Frequency and Channel list for 802.11n/ac(40MHz) band IV (5755-5795MHz):

802.11n/ac 40MHz Carrier Frequency Channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795	-	-

Frequency and Channel list for 802.11ac(80MHz) band IV (5775MHz):

802.11ac 80MHz Carrier Frequency Channel	
Channel	Frequency (MHz)
155	5775

2.2 TEST CONDITIONS

	Normal Test Conditions	Extreme Test Conditions
Temperature	15°C - 35°C	-10°C ~ 40°C Note1
Relative Humidity	20% - 75%	N/A
Power Rating	DC 3.87V	N/A
Test voltage	DC 3.87V	DC 3.29V-DC 4.45V Note2

Note:

(1) The temperature range as declared by the manufacturer; or one of the following specified temperature ranges:
- Temperature category I (General): -20 °C to +55 °C;
- Temperature category II (Portable): -10 °C to +55 °C;
- Temperature category III (Equipment for normal indoor use): 5 °C to +35 °C.

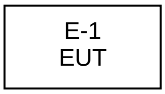
(2) The High Voltage 4.45V and Low Voltage 3.29V was declarated by manufacturer.

2.3 DESCRIPTION OF TEST CONDITIONS

For Conducted Test	
Pretest Mode	Description
Mode 1	802.11a /n/ ac 20 CH149/ CH157/ CH 165
Mode 2	802.11n/ ac40 CH 151 / CH 159
Mode 3	802.11 ac80 CH 155

For Radiated Test	
Final Test Mode	Description
Mode 1	802.11a /n/ ac 20 CH149/ CH157/ CH 165
Mode 2	802.11n/ ac40 CH 151 / CH 159
Mode 3	802.11 ac80 CH 155

2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.5 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model/Type No.	Series No.	Note
E-1	Smartphone	A10	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

(3) “YES” means “shielded” or “with ferrite core”;”NO” means “unshielded” or”without ferrite core”

2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

EQUIPMENT TYPE	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
EMI Test Receiver	R&S	ESPI7	101318	2024.03.12	2025.03.11	1 year
Bilog Antenna	TESEQ	CBL6111D	31216	2024.03.11	2025.03.10	1 year
Turn Table	EM	SC100_1	60531	N/A	N/A	N/A
Antnna Mast	EM	SC100	N/A	N/A	N/A	N/A
Horn Antenna	EM	EM-AH-10180	2011071402	2022.03.31	2025.03.30	3 year
Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2022.11.07	2025.11.06	3 year
Test Cable (30MHz-1GHz)	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
Test Cable (1-18GHz)	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2023.05.06	2026.05.05	3 year
Pre-Amplifier	EMC	EMC051835SE	980246	2023.05.29	2024.05.28	1 year
Spectrum Analyzer	Agilent	E4440A	MY41000130	2024.03.12	2025.03.11	1 year
Filter	TRILTHIC	2400MHz	29	2023.03.27	2026.03.26	3 year
Attenuator	Weinschel	33-10-33	AR4010	2023.03.27	2026.03.26	3 year
Attenuator	Weinschel	24-20-34	BP4485	2023.03.27	2026.03.26	3 year
MXA Signal Analyzer	Agilent	N9020A	MY49100060	2023.05.29	2024.05.28	1 year
ESG VETCTOR SIGNAL GENERAROR	Agilent	E4438C	MY45093347	2024.04.13	2025.04.12	1 year
Power Splitter	Mini-Circuits/ USA	ZN2PD-63-S+	SF025101428	2023.03.27	2026.03.26	3 year
Coupler	Mini-Circuits	ZADC-10-63-S +	SF794101410	2023.03.27	2026.03.26	3 year
Directional Coupler	MCLI/USA	CB11-20	0D2L51502	2023.07.04	2026.07.03	3 year
Attenuator	Agilent	8495B	MY42147029	2023.03.27	2026.03.26	3 year
Power Meter	DARE	RPR3006W	15I00041SNO 84	2023.05.29	2024.05.28	1 year
MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2023.05.29	2024.05.28	1 year
Wideband Radio Communication Tester Specifications	R&S	CMW500	148500	2023.05.29	2024.05.28	1 year
temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A

3. EQUIVALENT ISOTROPICALLY RADIATED POWER (E.I.R.P.)

3.1 APPLICABILITY

The equivalent isotropically radiated power requirement shall apply to all transmitters.

3.2 LIMITS

Table 2: Maximum radiated peak power (e.i.r.p.)

Frequency Bands	Power	Application	Notes
2 400 MHz to 2 483,5 MHz	10 mW e.i.r.p.	Non-specific short range devices	
2 400 MHz to 2 483,5 MHz	25 mW e.i.r.p.	Radio determination devices	
(a) 2 446 MHz to 2 454 MHz	500 mW e.i.r.p.	Radio Frequency Identification (RFID) devices	See also table 4 and annex D
(b) 2 446 MHz to 2 454 MHz	4 W e.i.r.p.	Radio Frequency Identification (RFID) devices	See also table 4 and annex D
5 725 MHz to 5 875 MHz	25 mW e.i.r.p.	Non-specific short range devices	
9 200 MHz to 9 500 MHz	25 mW e.i.r.p.	Radio determination devices	
9 500 MHz to 9 975 MHz	25 mW e.i.r.p.	Radio determination devices	
10,5 GHz to 10,6 GHz	500 mW e.i.r.p.	Radio determination devices	
13,4 GHz to 14,0 GHz	25 mW e.i.r.p.	Radio determination devices	
17,1 GHz to 17,3 GHz	400 mW e.i.r.p.	Radio determination devices	See annex F
24,00 GHz to 24,25 GHz	100 mW e.i.r.p.	Non-specific short range devices and Radio determination devices	

3.3 GENERAL REQUIREMENTS

1. To measure e.i.r.p. it is first necessary to determine the appropriate method of measurement: see EN 300440 V2.2.1 clauses 4.2.2.3.1 and 4.2.2.3.2. The -6 dB transmitter bandwidth shall be determined using a 100 kHz measuring bandwidth in order to establish which measurement method is applicable:

<table>
<tr><th colspan="2">Condition</th><th>Method of measurement</th></tr>
<tr><td rowspan="2">☐ Non spread spectrum transmitters with a -6 dB bandwidth of up to 20 MHz and spread spectrum transmitters with channel bandwidth of up to 1 MHz;</td><td>☐Non spread spectrum equipment with a -6 dB bandwidth of 20 MHz or less and a duty cycle above 50 %;</td><td rowspan="2">Refer to section 3.4.1</td></tr>
<tr><td>☐Spread spectrum equipment with a -6 dB channel bandwidth of 1 MHz or less.</td></tr>
<tr><td rowspan="2">☒ for all other transmitter bandwidths.</td><td>☐equipment with a -6 dB bandwidth greater than 20 MHz, and equipment with a duty cycle below 50 %;;</td><td rowspan="2">Refer to section 3.4.2</td></tr>
<tr><td>☒spread spectrum equipment with a channel bandwidth above 1 MHz..</td></tr>
</table>

2. Measurements shall be performed at normal test conditions.

3.4 TEST PROCEDURES

3.4.1 FOR NON SPREAD SPECTRUM TRANSMITTERS

The measurement shall be repeated at the lowest, the middle, and the highest frequency of the stated frequency range. These frequencies shall be recorded.

Equipment measured as constant envelope modulation equipment

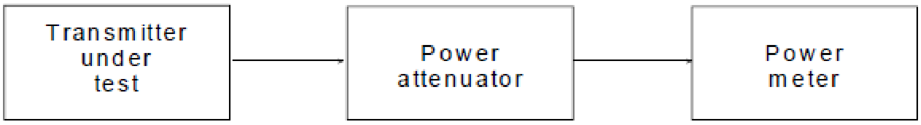
For practical reasons, measurements shall be performed only at the highest power level at which the transmitter is intended to operate. The measurement arrangement in figure 2 shall be used.
The measurement shall be performed preferably in the absence of modulation.
When it is not possible to measure it in the absence of modulation, this fact shall be stated in test reports.
The transmitter shall be set in continuous transmission mode. If this is not possible, the measurements shall be carried
out in a period shorter than the duration of the transmitted burst. It may be necessary to extend the duration of the burst.
The transmitter shall be connected to an artificial antenna (see clause 5.8.2) and the power delivered to this artificial antenna shall be measured.
The equivalent isotropically radiated power is then calculated from the measured value, the known antenna gain, relative to an isotropic antenna, and if applicable, any losses due to cables and connectors in the measurement system.

Equipment measured as non-constant envelope modulation equipment
The measurement shall be performed with test signals D-M2 or D-M3 as appropriate.
The transmitter shall be preferably set in continuous transmission mode. If this is not possible, the measurement can be performed in discontinuous mode.
The transmitter shall be connected to an artificial antenna (see clause 5.8.2) and the power delivered to this artificial antenna shall be measured. The measuring instrument shall have a measurement bandwidth not less than sixteen times the channel bandwidth.
The equivalent isotropically radiated power is then calculated from the measured value, the known antenna gain, relative to an isotropic antenna, and if applicable, any losses due to cables and connectors in the measurement system.

3.4.2 FOR ALL OTHER TRANSMITTER BANDWIDTHS

Step 1:
• using a suitable means, the output of the transmitter shall be coupled to a matched diode detector;
• the output of the diode detector shall be connected to the vertical channel of an oscilloscope;
• the combination of the diode detector and the oscilloscope shall be capable of faithfully reproducing the envelope peaks and the duty cycle of the transmitter output signal;
• the observed duty cycle of the transmitter (Tx on/(Tx on + Tx off)) shall be noted as x, $(0 < x < 1)$ And recorded.
Step 2:
• the average output power of the transmitter shall be determined using a wideband, calibrated RF power meter with a matched thermocouple detector or an equivalent thereof and, where applicable, with an integration period that exceeds the repetition period of the transmitter by a factor 5 or more. The observed value shall be recorded as "A" (in dBm);
• the e.i.r.p. shall be calculated from the above measured power output A, the observed duty cycle x, and the applicable antenna assembly gain "G" in dBi, according to the formula:
- $P = A + G + 10 \log (1/x)$;
- P should be EIRP POWER.

3.5 TEST SETUP LAYOUT



3.6 EUT OPERATION DURING TEST

Where possible, the equipment shall be able to operate in a continuous transmit mode for testing purposes.

3.7 TEST RESULT FOR -6 DB BANDWIDTH

EUT :	Smartphone	Model Name :	A10
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 3.87V (NORMAL)
Test Mode :	Mode 1/2/3		

Test data reference attachment

3.8 TEST RESULT FOR E.I.R.P

EUT :	Smartphone	Model Name :	A10
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 3.87V (NORMAL)
Test Mode :	Mode 1/2/3		

Test data reference attachment

4. PERMITTED RANGE OF OPERATING FREQUENCIES

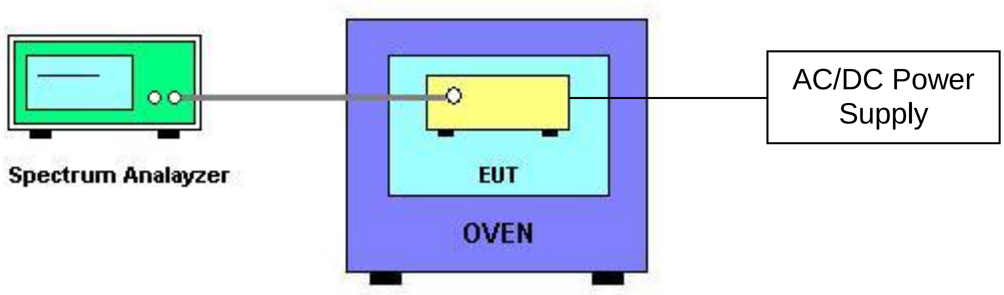
4.1 APPLIED PROCEDURES / LIMIT

The Permitted range of operating frequencies shall apply to all transmitters.
Limits:The width of the power spectrum envelope is fH -fL for a given operating frequency. In equipment that allows adjustment or selection of different operating frequencies, the power envelope takes up different positions in the allowed band. The frequency range is determined by the lowest value of fL and the highest value of fH resulting from the adjustment of the equipment to the lowest and highest operating frequencies.
The occupied bandwidth (i.e. the bandwidth in which 99 % of the wanted emission is contained) of the transmitter shall fall within the assigned frequency band.
For all equipment the frequency range shall lie within the frequency band given by section 3.2, table 2. For non-harmonized frequency bands the available frequency range may differ between national administrations.

4.2 TEST PROCEDURES

These measurements shall be performed under both normal and extreme operating conditions except for the occupied bandwidth assessment for which measurement at normal operating conditions is sufficient.
The measurement procedure shall be as follows:
a) put the spectrum analyser in video averaging mode with a minimum of 50 sweeps selected;
b) select the lowest operating frequency of the equipment under test and activate the transmitter with modulation applied. The RF emission of the equipment shall be displayed on the spectrum analyser;
c) using the marker of the spectrum analyser, find the lowest frequency below the operating frequency at which the spectral power density drops below the level given in clause 4.2.3. This frequency shall be recorded in the test report;
d) select the highest operating frequency of the equipment under test and find the highest frequency at which the spectral power density drops below the value given in clause 4.2.3. This frequency shall be recorded in the test report;
e) the difference between the frequencies measured in steps c) and d) is the operating frequency range. It shall be recorded in the test report.

4.3 TEST SETUP LAYOUT



4.4 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

4.5 TEST RESULTS

EUT :	Smartphone	Model Name :	A10
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 3.87V (NORMAL)
Test Mode :	TX		

802.11a

Extreme condition				**Frequency range (MHz)**	
				F_L CH149	**F_H CH165**
T nom (°C)	20	V nom (V)	3.87	5736.645	5833.082
T min (°C)	-10	V max (V)	4.45	5736.656	5833.09
		V nom (V)	3.87	5736.667	5833.098
		V min (V)	3.29	5736.678	5833.106
T max (°C)	40	V max (V)	4.45	5736.689	5833.114
		V nom (V)	3.87	5736.7	5833.122
		V min (V)	3.29	5736.711	5833.13
Min. f_L / Max. f_H Band Edges				5736.645	5833.130
Indoor Use Limits				F_L > 5725.0 MHz	F_L < 5875.0 MHz
Result				**Complies**	

802.11n20

Extreme condition				**Frequency range (MHz)**	
				F_L CH149	**F_H CH165**
T nom (°C)	20	V nom (V)	3.87	5736.309	5833.947
T min (°C)	-10	V max (V)	4.45	5736.32	5833.955
		V nom (V)	3.87	5736.331	5833.963
		V min (V)	3.29	5736.342	5833.971
T max (°C)	40	V max (V)	4.45	5736.353	5833.979
		V nom (V)	3.87	5736.364	5833.987
		V min (V)	3.29	5736.375	5833.995
Min. f_L / Max. f_H Band Edges				5736.309	5833.995
Indoor Use Limits				F_L > 5725.0 MHz	F_L < 5875.0 MHz
Result				**Complies**	

802.11n40

Extreme condition				Frequency range (MHz)	
				F_L CH151	F_H CH159
T nom (°C)	20	V nom (V)	3.87	5737.074	5813.183
T min (°C)	-10	V max (V)	4.45	5737.085	5813.191
		V nom (V)	3.87	5737.096	5813.199
		V min (V)	3.29	5737.107	5813.207
T max (°C)	40	V max (V)	4.45	5737.118	5813.215
		V nom (V)	3.87	5737.129	5813.223
		V min (V)	3.29	5737.14	5813.231
Min. f_L / Max. f_H Band Edges				5737.074	5813.231
Indoor Use Limits				F_L > 5725.0 MHz	F_L < 5875.0 MHz
Result				**Complies**	

802.11ac20

Extreme condition				Frequency range (MHz)	
				F_L CH149	F_H CH165
T nom (°C)	20	V nom (V)	3.87	5736.047	5833.656
T min (°C)	-10	V max (V)	4.45	5736.058	5833.664
		V nom (V)	3.87	5736.069	5833.672
		V min (V)	3.29	5736.08	5833.68
T max (°C)	40	V max (V)	4.45	5736.091	5833.688
		V nom (V)	3.87	5736.102	5833.696
		V min (V)	3.29	5736.113	5833.704
Min. f_L / Max. f_H Band Edges				5736.047	5833.704
Indoor Use Limits				F_L > 5725.0 MHz	F_L < 5875.0 MHz
Result				**Complies**	

802.11ac40

Extreme condition				Frequency range (MHz)	
				F_L CH151	**F_H CH159**
T nom (°C)	20	V nom (V)	3.87	5737.744	5813.935
T min (°C)	-10	V max (V)	4.45	5737.755	5813.943
		V nom (V)	3.87	5737.766	5813.951
		V min (V)	3.29	5737.777	5813.959
T max (°C)	40	V max (V)	4.45	5737.788	5813.967
		V nom (V)	3.87	5737.799	5813.975
		V min (V)	3.29	5737.81	5813.983
Min. f_L / Max. f_H Band Edges				5737.744	5813.983
Indoor Use Limits				F_L > 5725.0 MHz	F_L < 5875.0 MHz
Result				**Complies**	

802.11ac80

Extreme condition				Frequency range (MHz)	
				F_L CH155	**F_H CH155**
T nom (°C)	20	V nom (V)	3.87	5737.483	5812.762
T min (°C)	-10	V max (V)	4.45	5737.494	5812.77
		V nom (V)	3.87	5737.505	5812.778
		V min (V)	3.29	5737.516	5812.786
T max (°C)	40	V max (V)	4.45	5737.527	5812.794
		V nom (V)	3.87	5737.538	5812.802
		V min (V)	3.29	5737.549	5812.81
Min. f_L / Max. f_H Band Edges				5737.483	5812.810
Indoor Use Limits				F_L > 5725.0 MHz	F_L < 5875.0 MHz
Result				**Complies**	

5. UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

5.1 APPLIED PROCEDURES / LIMIT

The unwanted emissions in the spurious domain requirement shall apply to all transmitters.

State	47 MHz to 74 MHz 87.5 MHz to 118 MHz 174 MHz to 230 MHz 470 MHz to 862 MHz	Other frequencies ≤ 1 000 MHz	Frequencies > 1 000 MHz
Operating	4 nW /-54dBm	250 nW/-36dBm	1 μW /-30dBm
Standby	2 nW /-57dBm	2 nW /-57dBm	20 nW /-47dBm

5.2 MEASURING INSTRUMENTS AND SETTING

The following table is the setting of the Spectrum Analyzer.

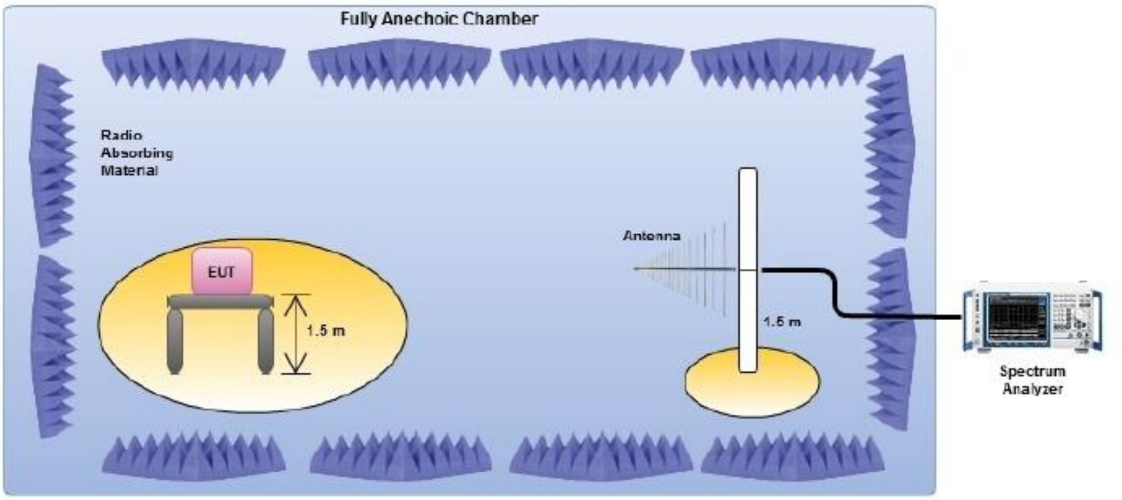
Spectrum Analyzer	Setting
Attenuation	Auto
Start Frequency	30 MHz
Stop Frequency	40GHz
Detector	Positive Peak
Sweep Time	Auto
RB	For frequency 30MHz~1G:100 kHz~120 kHz For frequency above 1G:1MHz

5.3 TEST PROCEDURES

a. The EUT was placed on the top of the turntable in open test site area.
b. The test shall be made in the transmitting mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
c. This measurement shall be repeated with the transmitter in standby mode where applicable.
d. For 30~1000MHz spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable. For above 1G, using Horn antenna .
e. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).
f. Replace the EUT by standard antenna and feed the RF port by signal generator.
g. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
h. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
i. The level of the spurious emission is the power level of (8) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.
j. If the level calculated in (9) is higher than limit by more than 6dB, then lower the RBW of the spectrum analyzer to 30KHz. If the level of this emission does not change by more than 2dB, then it is taken as narrowband emission, otherwise, wideband emission.
k. The measurement shall be repeated at the lowest and the highest channel of the stated frequency range.

5.4 TEST SETUP LAYOUT

Radiated Emission Test Set-Up



5.5 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

5.6 RESULTS OF STANDBY MODE SPURIOUS EMISSIONS

For the initial investigation on standby mode and receiving mode, no significant differences in spurious emissions were observed between these 2 modes. So test data for standby mode was omitted in this section.

5.7 TEST RESULTS

EUT :	Smartphone	Model Name :	A10
Temperature :	24 ℃	Relative Humidity :	54%
Pressure :	1010 hPa	Test Power :	DC 3.87V (NORMAL)
Test Mode :	TX-802.11n40 mode		

Below 1G :

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
V	46.096	-69.4	14.47	-54.93	-36	-18.93	peak
V	92.69	-79.37	7.22	-72.15	-54	-18.15	peak
V	158.147	-73.77	12.25	-61.52	-36	-25.52	peak
V	225.945	-78.92	13.31	-65.61	-54	-11.61	peak
V	464.018	-76.43	15.91	-60.52	-36	-24.52	peak
V	702.976	-89.4	21.65	-67.75	-54	-13.75	peak
H	40.372	-72.7	18.31	-54.39	-36	-18.39	peak
H	109.215	-80.33	6.20	-74.13	-54	-20.13	peak
H	123.324	-74.74	10.27	-64.47	-36	-28.47	peak
H	197.022	-81.29	12.05	-69.24	-54	-15.24	peak
H	426.813	-70.74	12.93	-57.81	-36	-21.81	peak
H	524.356	-80.06	17.58	-62.48	-54	-8.48	peak

Remark:

Emission Level= Meter Reading+ Factor, Margin= Emission Level- Limit

Above 1G :

Polar (H/V)	Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Detector Type
operation frequency:5745 MHz							
V	2259.431	-51.62	2.61	-49.01	-30	-19.01	peak
V	4812.261	-49.49	3.32	-46.17	-30	-16.17	peak
V	2909.869	-49.68	8.34	-41.34	-30	-11.34	peak
V	4388.492	-52.23	8.72	-43.51	-30	-13.51	peak
H	2472.736	-50.7	3.12	-47.58	-30	-17.58	peak
H	5779.496	-50.3	8.53	-41.77	-30	-11.77	peak
H	2141.139	-48.67	9.58	-39.09	-30	-9.09	peak
H	3113.736	-62.68	14.73	-47.95	-30	-17.95	peak
operation frequency:5785 MHz							
V	2894.078	-51.01	2.61	-48.40	-30	-18.40	peak
V	3292.814	-50.66	3.32	-47.34	-30	-17.34	peak
V	2927.336	-48.57	8.34	-40.23	-30	-10.23	peak
V	4500.351	-50.08	8.72	-41.36	-30	-11.36	peak
V	2457.19	-51.61	3.12	-48.49	-30	-18.49	peak
H	3548.759	-49.67	8.53	-41.14	-30	-11.14	peak
H	2851.999	-49.86	9.58	-40.28	-30	-10.28	peak
H	3184.844	-61.97	14.73	-47.24	-30	-17.24	peak
H	4572.041	-59.76	14.73	-45.03	-30	-15.03	peak
operation frequency:5825 MHz							
V	2655.918	-49.06	2.61	-46.45	-30	-16.45	peak
V	3161.154	-52.53	3.32	-49.21	-30	-19.21	peak
V	2542.483	-50.07	8.34	-41.73	-30	-11.73	peak
V	4331.359	-52.45	8.72	-43.73	-30	-13.73	peak
V	2852.48	-48.4	3.12	-45.28	-30	-15.28	peak
H	4181.562	-48.53	8.53	-40.00	-30	-10.00	peak
H	2949.656	-52.82	9.58	-43.24	-30	-13.24	peak
H	5151.768	-59.22	14.73	-44.49	-30	-14.49	peak
H	4002.682	-58.12	14.73	-43.39	-30	-13.39	peak
Remark:							
Emission Level= Meter Reading+ Factor, Margin= Emission Level- Limit							

Note: Only the worst case 802.11n40 mode recorded in the report.

6. DUTY CYCLE

6.1 APPLICABILITY AND DESCRIPTION

Duty Cycle (DC) shall apply to all transmitting equipment except those which utilize Listen Before Talk (LBT) clause 4.4.2, or Detect And Avoid (DAA), clause 4.4.3. RFID transmitters operating in the 2 446 MHz to 2 454 MHz frequency band that transmit at a maximum radiated peak power level of less than 500 mW e.i.r.p. are also excluded.

Duty cycle is the ratio expressed as a percentage, of the cumulative duration of transmissions T_{on_cum} within an observation interval $T_{obs.}$

$$DC = \left(\frac{T_{on\_cum}}{T_{obs}}\right) F_{obs}$$ on an observation bandwidth F_{obs}.

Unless otherwise specified, T_{obs} is 1 hour and the observation bandwidth F_{obs} is the operational frequency band
Each transmission consists of an RF emission, or sequence of RF emissions separated by intervals < T_{Dis}.

6.2 LIMITS

Table 4 defines the maximum duty cycle within a 1 hour period.

Table 4: Duty cycle limits

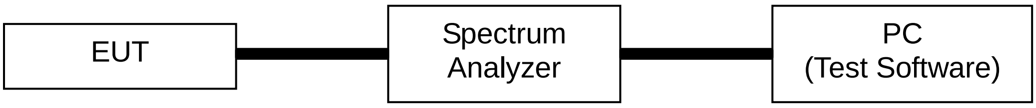
Frequency Band	Duty cycle	Application	Notes
2 400 MHz to 2 483,5 MHz	No Restriction	Generic use	
2 400 MHz to 2 483,5 MHz	No Restriction	Detection, movement and alert applications	
(a) 2 446 MHz to 2 454 MHz	No Restriction	RFID	Limits shown in annex D shall apply
(b) 2 446 MHz to 2 454 MHz	≤ 15 %	RFID	Limits shown in annex D shall apply
5 725 MHz to 5 875 MHz	No Restriction	Generic use	
9 200 MHz to 9 500 MHz	No Restriction	Radiodetermination: radar, detection, movement and alert applications	
9 500 MHz to 9 975 MHz	No Restriction	Radiodetermination: radar, detection, movement and alert applications	
10,5 GHz to 10,6 GHz	No Restriction	Radiodetermination: radar, detection, movement and alert applications	
13,4 GHz to 14,0 GHz	No Restriction	Radiodetermination: radar, detection, movement and alert applications	
17,1 GHz to 17,3 GHz	DAA or equivalent techniques	Radiodetermination: GBSAR detecting and movement and alert applications	Limits shown in annex F shall apply
24,00 GHz to 24,25 GHz	No Restriction	Generic use and for Radiodetermination: radar, detection, movement and alert applications	

For devices with a 100 % duty cycle transmitting an unmodulated carrier most of the time, a time-out shut-off facility shall be implemented in order to improve the efficient use of spectrum. The method of implementation shall be declared by the manufacturer.

6.4 METHOD OF MEASUREMENT

Please refer to EN 300440 V2.2.1 Clause 4.2.5.3.

6.5 TEST SETUP



6.6 TEST RESULTS

EUT:	Smartphone	Model Name:	A10
Temperature:	26°C	Relative Humidity:	53 %
Pressure:	1012 hPa	Test Voltage:	DC 3.87V (NORMAL)
Test Mode:	Mode 1/2/3		

Test data reference attachment

7. SPURIOUS EMISSIONS – RX

7.1 APPLIED PROCEDURES / LIMIT

Clause	Test Item	Frequency(MHz)	Limit
4.3.5.4	Spurious emissions	30-1000	-57dBm
	(radiated)	Above 1000	-47dBm

7.2 MEASURING INSTRUMENTS AND SETTING

The following table is the setting of the Spectrum Analyzer.

Spectrum Analyzer	Setting
Attenuation	Auto
Start Frequency	30 MHz
Stop Frequency	40GHz
Detector	Positive Peak
Sweep Time	Auto
RB	For frequency 30MHz~1G:100 kHz~120 kHz For frequency above 1G:1MHz

7.3 TEST PROCEDURES

a. The EUT was placed on the top of the turntable in open test site area.
b. The test shall be made in the receiving mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
c. For 30~1000MHz spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable.For above 1G, using Horn antenna .
d. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).
e. Replace the EUT by standard antenna and feed the RF port by signal generator.
f. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
g. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
h. The level of the spurious emission is the power level of (7) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.
i. The measurement shall be repeated at the lowest and the highest channel of the stated frequency range.

7.5 TEST SETUP LAYOUT

This test setup layout is the same as that shown in section 5.4.

7.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously receiving mode.

7.7 TEST RESULTS

EUT :	Smartphone	Model Name :	A10
Temperature :	26°C	Relative Humidity :	53 %
Pressure :	1012 hPa	Test Power :	DC 3.87V (NORMAL)
Test Mode :	RX-802.11n40 mode		

Below 1G :

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
V	37.757	-87.7	18.82	-68.88	-57	-11.88	peak
V	93.713	-78	11.11	-66.89	-57	-9.89	peak
V	200.792	-83.59	11.41	-72.18	-57	-15.18	peak
V	381.339	-81.25	12.72	-68.53	-57	-11.53	peak
V	540.43	-81.18	12.66	-68.52	-57	-11.52	peak
V	482.618	-80.51	12.62	-67.89	-57	-10.89	peak
H	31.592	-86.63	19.94	-66.69	-57	-9.69	peak
H	101.947	-81.85	10.96	-70.89	-57	-13.89	peak
H	209.713	-77.32	9.42	-67.90	-57	-10.90	peak
H	428.071	-81.02	12.65	-68.37	-57	-11.37	peak
H	645.372	-83.22	11.78	-71.44	-57	-14.44	peak
H	680.305	-87.36	15.38	-71.98	-57	-14.98	peak

Remark:

Emission Level= Meter Reading+ Factor, Margin= Emission Level- Limit

Above 1G :

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
V	2554.554	-82.79	11.33	-71.46	-47	-24.46	peak
V	5644.599	-79.01	10.97	-68.04	-47	-21.04	peak
V	2769.585	-80.77	10.14	-70.63	-47	-23.63	peak
V	4323.547	-84.25	16.83	-67.42	-47	-20.42	peak
V	2116.136	-83.65	10.52	-73.13	-47	-26.13	peak
H	3851.546	-80.35	11.70	-68.65	-47	-21.65	peak
H	2691.25	-83.44	6.62	-76.82	-47	-29.82	peak
H	4759.637	-80.02	14.99	-65.03	-47	-18.03	peak
H	3885.182	-69.67	8.25	-61.42	-47	-14.42	peak
H	5425.199	-78.68	14.99	-63.69	-47	-16.69	peak

Remark:

Emission Level= Meter Reading+ Factor, Margin= Emission Level- Limit

8. ADJACENT CHANNEL SELECTIVITY

8.1 APPLICABILITY

This requirement applies to channelized Category 1 receivers..

8.2 LIMITS

The adjacent channel selectivity of the equipment under specified conditions shall not be less than -30 dBm + k.

The correction factor, k, is as follows:

$$k = -20\log f - 10\log BW$$

Where:

- f is the frequency in GHz;
- BW is the channel bandwidth in MHz.

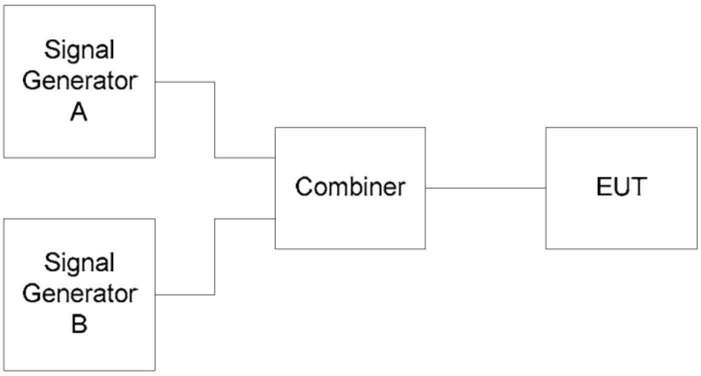
The factor k is limited within the following:

- -40 dB < k < 0 dB.

8.3 METHODS OF MEASUREMENT

This measurement shall be conducted under normal conditions.
Two signal generators A and B shall be connected to the receiver via a combining network to the receiver, either:
a) via a test fixture or a test antenna to the receiver integrated, dedicated or test antenna; or
b) directly to the receiver permanent or temporary antenna connector.
The method of coupling to the receiver shall be stated in the test report.
Signal generator A shall be at the nominal frequency of the receiver, with normal modulation of the wanted signal.
Signal generator B shall be unmodulated and shall be adjusted to the adjacent channel centre frequency immediately
above that of the wanted signal.
Initially signal generator B shall be switched off and using signal generator A the level that still gives sufficient
response shall be established. The output level of generator A shall then be increased by 3 dB.
Signal generator B is then switched on and adjusted until the wanted criteria are met. This level shall be recorded.
The measurements shall be repeated with signal generator B unmodulated and adjusted to the adjacent channel centre immediately below the wanted signal.
The adjacent channel selectivity shall be recorded for the upper and lower adjacent channels as the level in dBm of the unwanted signal.
For tagging systems (e.g. RF identification, anti-theft, access control, location and similar systems) signal generator A may be replaced by a physical tag positioned at 70 % of the measured system range in metres.
In this case, the adjacent selectivity shall be recorded as the level in dBm of lowest level of the unwanted signal
(generator B) resulting in a non-read of the tag.

8.4 TEST SETUP LAYOUT



8.5 TEST RESULTS

EUT :	Smartphone	Model Name :	A10
Temperature :	24 ℃	Relative Humidity :	54%
Pressure :	1010 hPa	Test Voltage :	N/A
Test Mode :	N/A		

Not applicable.

9. BLOCKING OR DESENSITIZATION

9.1 APPLICABILITY

This requirement applies to all Category 1, 2, and 3 SRD communication media receivers.

9.2 LIMITS

The blocking level, for any frequency within the specified ranges, shall not be less than the values given in table 6,except at frequencies on which spurious responses are found.

Table 6: Limits for blocking or desensitization

Receiver category	Limit
1	-30 dBm + k
2	-45 dBm + k
3	-60 dBm + k

The correction factor, k, is as follows:

k =□ -20log f -10log BW

Where:

- f is the frequency in GHz;
- BW is the channel bandwidth in MHz.

The factor k is limited within the following:

- -40 dB < k < 0 dB.

9.3 TEST PROCEDURES

This measurement shall be conducted under normal conditions.

Two signal generators A and B shall be connected to the receiver via a combining network to the receiver, either:

a) via a test fixture or a test antenna to the receiver integrated, dedicated or test antenna; or

b) directly to the receiver permanent or temporary antenna connector.

The method of coupling to the receiver shall be stated in the test report.

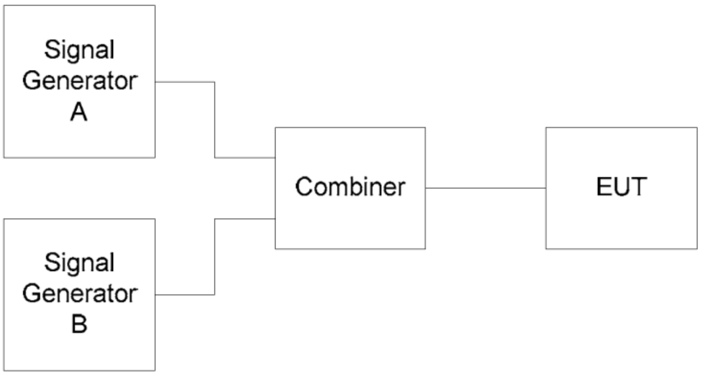
Signal generator A shall be at the nominal frequency of the receiver, with normal modulation of the wanted signal.Signal generator B shall be unmodulated and shall be adjusted to a test frequency at approximately 10 times, 20 times and 50 times of the occupied bandwidth above upper band edge of occupied bandwidth.Initially signal generator B shall be switched off and using signal generator A the level which still gives sufficient response shall be established. The output level of generator A shall then be increased by 3 dB.Signal generator B is then switched on and adjusted until the wanted criteria are met. This level shall be recorded.

The measurement shall be repeated with the test frequency for signal generator B at 10 times, 20 times and 50 times of the occupied bandwidth below the lower band edge of the occupied bandwidth.

The blocking or desensitization shall be recorded as the level in dBm of lowest level of the unwanted signal(generator B).

For tagging systems (e.g. RF identification, anti-theft, access control, location and similar systems) signal generator A may be replaced by a physical tag positioned at 70 % of the measured system range in metres. In this case, the blocking or desensitization shall be recorded as the ratio in dB of lowest level of the unwanted signal (generator B) resulting in a non-read of the tag. to the declared sensitivity of the receiver +3 dB.

8.4 TEST SETUP LAYOUT



9.4 TEST RESULTS

EUT：	Smartphone	Model Name ：	A10
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Voltage ：	DC 3.87V (NORMAL)
Test Mode ：	RX		

802.11a

5745 MHz

Flow= 5735.69293MHz; Fhigh= 5754.30707MHz, occupied bandwidth=18.61414MHz

Receiver category	Frequency offset	Test Frequency (MHz)	Measurement Vause(dB)	Measurement Vause(dB)	≧Limit(dB)
3			(Generator A)	(Generator B)	
	5745 MHz	5745	-64.61	-	-
	10 times lower band edge of the occupied bandwidth	5549.55153	-	-28.38	-87.88(Note1)
	20 times lower band edge of the occupied bandwidth	5363.41013	-	-34.40	-87.88
	50 times lower band edge of the occupied bandwidth	4804.98593	-	-34.03	-87.88
	10 times upper band edge of the occupied bandwidth	5940.44847	-	-28.64	-87.88
	20 times upper band edge of the occupied bandwidth	6126.58987	-	-35.19	-87.88
	50 times upper band edge of the occupied bandwidth	6685.01407	-	-31.30	-87.88

Note1：

The limit：

-60 dBm + k

The correction factor, k, is as follows:

k = -20log f -10logBW

k = -27.88

Where:

- f is the frequency in GHz;
- BW is the occupied bandwidth in MHz.

802.11a

5825 MHz

Flow= 5815.9889MHz; Fhigh= 5833.48315MHz, occupied bandwidth=17.49425MHz

Receiver category	Frequency offset	Test Frequency (MHz)	Measurement Vause(dB)	Measurement Vause(dB)	≧Limit(dB)
3			(Generator A)	(Generator B)	
	5825 MHz	5825	-66.09	-	-
	10 times lower band edge of the occupied bandwidth	5641.0464	-	-28.98	-87.73(Note[1])
	20 times lower band edge of the occupied bandwidth	5466.1039	-	-35.27	-87.73
	50 times lower band edge of the occupied bandwidth	4941.2764	-	-34.97	-87.73
	10 times upper band edge of the occupied bandwidth	6008.42565	-	-30.05	-87.73
	20 times upper band edge of the occupied bandwidth	6183.36815	-	-35.44	-87.73
	50 times upper band edge of the occupied bandwidth	6708.19565	-	-29.93	-87.73

Note1 :

The limit :

-60 dBm + k

The correction factor, k, is as follows:

k = -20log f -10logBW

k = -27.73

Where:

- f is the frequency in GHz;
- BW is the occupied bandwidth in MHz.

802.11n20

5745 MHz

Flow= 5734.50505MHz; Fhigh= 5755.39096MHz, occupied bandwidth=20.88591MHz

Receiver category	Frequency offset	Test Frequency (MHz)	Measurement Vause(dB)	Measurement Vause(dB)	≧Limit(dB)
			(Generator A)	(Generator B)	
3	5745 MHz	5745	-65.82	-	-
	10 times lower band edge of the occupied bandwidth	5525.64595	-	-28.52	-88.38(Note[1])
	20 times lower band edge of the occupied bandwidth	5316.78685	-	-33.65	-88.38
	50 times lower band edge of the occupied bandwidth	4690.20955	-	-34.31	-88.38
	10 times upper band edge of the occupied bandwidth	5964.25006	-	-29.61	-88.38
	20 times upper band edge of the occupied bandwidth	6173.10916	-	-35.42	-88.38
	50 times upper band edge of the occupied bandwidth	6799.68646	-	-31.11	-88.38

Note1 :

The limit :

-60 dBm + k

The correction factor, k, is as follows:

k = -20log f -10logBW

k = -28.38

Where:

- f is the frequency in GHz;
- BW is the occupied bandwidth in MHz.

802.11n20

5825 MHz

Flow= 5815.80092MHz; Fhigh= 5833.9591MHz, occupied bandwidth=18.15818MHz

Receiver category	Frequency offset	Test Frequency (MHz)	Measurement Vause(dB)	Measurement Vause(dB)	≧Limit(dB)
			(Generator A)	(Generator B)	
3	5825 MHz	5825	-64.60	-	-
	10 times lower band edge of the occupied bandwidth	5634.21912	-	-28.34	-87.90(Note[1])
	20 times lower band edge of the occupied bandwidth	5452.63732	-	-34.07	-87.90
	50 times lower band edge of the occupied bandwidth	4907.89192	-	-35.07	-87.90
	10 times upper band edge of the occupied bandwidth	6015.5409	-	-29.13	-87.90
	20 times upper band edge of the occupied bandwidth	6197.1227	-	-35.39	-87.90
	50 times upper band edge of the occupied bandwidth	6741.8681	-	-30.40	-87.90

Note1 :

The limit :

-60 dBm + k

The correction factor, k, is as follows:

k = -20log f -10logBW

k = -27.89

Where:

- f is the frequency in GHz;
- BW is the occupied bandwidth in MHz.

802.11n40

5755 MHz

Flow= 5732.9942MHz; Fhigh= 5775.73393MHz, occupied bandwidth=42.73973MHz

Receiver category	Frequency offset	Test Frequency (MHz)	Measurement Vause(dB)	Measurement Vause(dB)	≧Limit(dB)
			(Generator A)	(Generator B)	
3	5755 MHz	5755	-66.39	-	-
	10 times lower band edge of the occupied bandwidth	5305.5969	-	-28.61	-91.51(Note[1])
	20 times lower band edge of the occupied bandwidth	4878.1996	-	-33.69	-91.51
	50 times lower band edge of the occupied bandwidth	3596.0077	-	-35.19	-91.51
	10 times upper band edge of the occupied bandwidth	6203.13123	-	-30.22	-91.51
	20 times upper band edge of the occupied bandwidth	6630.52853	-	-34.69	-91.51
	50 times upper band edge of the occupied bandwidth	7912.72043	-	-29.90	-91.51

Note1 :

The limit :

-60 dBm + k

The correction factor, k, is as follows:

k = -20log f -10logBW

k = -31.51

Where:

- f is the frequency in GHz;
- BW is the occupied bandwidth in MHz.

802.11n40

5795 MHz

Flow= 5774.69803MHz; Fhigh= 5813.66213MHz, occupied bandwidth=38.9641MHz

Receiver category	Frequency offset	Test Frequency (MHz)	Measurement Vause(dB)	Measurement Vause(dB)	≧Limit(dB)
			(Generator A)	(Generator B)	
3	5795 MHz	5795	-65.13	-	-
	10 times lower band edge of the occupied bandwidth	5385.05703	-	-28.83	-91.17(Note[1])
	20 times lower band edge of the occupied bandwidth	4995.41603	-	-34.87	-91.17
	50 times lower band edge of the occupied bandwidth	3826.49303	-	-34.71	-91.17
	10 times upper band edge of the occupied bandwidth	6203.30313	-	-30.29	-91.17
	20 times upper band edge of the occupied bandwidth	6592.94413	-	-35.03	-91.17
	50 times upper band edge of the occupied bandwidth	7761.86713	-	-31.83	-91.17

Note1 :

The limit :

-60 dBm + k

The correction factor, k, is as follows:

k = -20log f -10logBW

k = -31.17

Where:

- f is the frequency in GHz;
- BW is the occupied bandwidth in MHz.

802.11ac80

5775 MHz

Flow= 5729.5645MHz; Fhigh= 5813.4922MHz, occupied bandwidth=83.9277MHz

Receiver category	Frequency offset	Test Frequency (MHz)	Measurement Vause(dB)	Measurement Vause(dB)	≧Limit(dB)
3			(Generator A)	(Generator B)	
	5775 MHz	5775	-65.66	-	-
	10 times lower band edge of the occupied bandwidth	4890.288	-	-28.26	-94.47(Note[1])
	20 times lower band edge of the occupied bandwidth	4051.011	-	-33.93	-94.47
	50 times lower band edge of the occupied bandwidth	1533.180	-	-34.35	-94.47
	10 times upper band edge of the occupied bandwidth	6652.769	-	-30.23	-94.47
	20 times upper band edge of the occupied bandwidth	7492.046	-	-35.66	-94.47
	50 times upper band edge of the occupied bandwidth	10009.877	-	-30.80	-94.47

Note1 :

The limit :

-60 dBm + k

The correction factor, k, is as follows:

k = -20log f -10logBW

k = -34.47

Where:

- f is the frequency in GHz;
- BW is the occupied bandwidth in MHz.

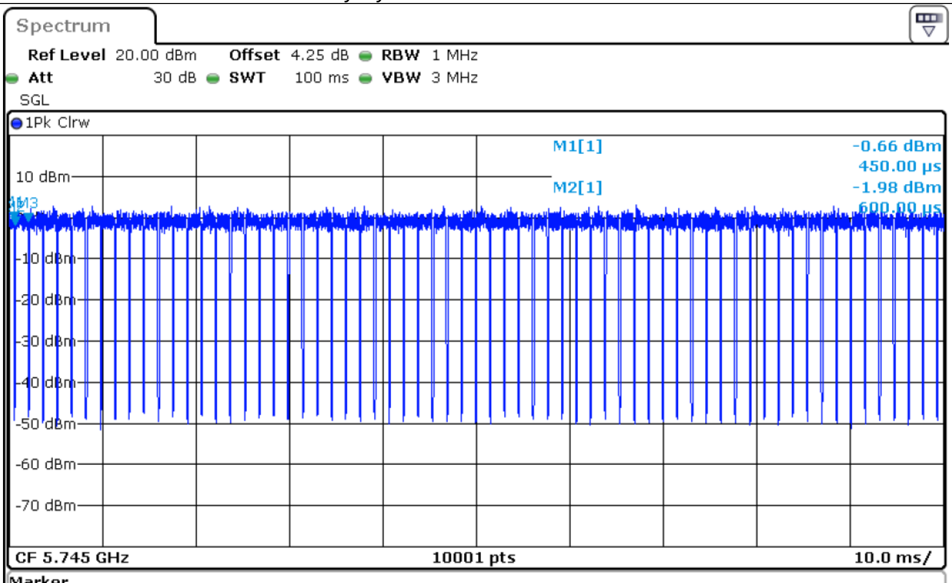
10. TEST RESULTS

10.1 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5745	Ant1	90.81	0.42	0.72
NVNT	a	5785	Ant1	90.29	0.44	0.72
NVNT	a	5825	Ant1	90.91	0.41	0.71
NVNT	n20	5745	Ant1	88.44	0.53	0.85
NVNT	n20	5785	Ant1	88.17	0.55	0.86
NVNT	n20	5825	Ant1	88.61	0.53	0.86
NVNT	n40	5755	Ant1	78.82	1.03	1.75
NVNT	n40	5795	Ant1	79.09	1.02	1.75
NVNT	ac20	5745	Ant1	87.77	0.57	0.84
NVNT	ac20	5785	Ant1	88.47	0.53	0.85
NVNT	ac20	5825	Ant1	89.38	0.49	0.85
NVNT	ac40	5755	Ant1	81.25	0.9	1.69
NVNT	ac40	5795	Ant1	80.72	0.93	1.69
NVNT	ac80	5775	Ant1	68.53	1.64	3.33

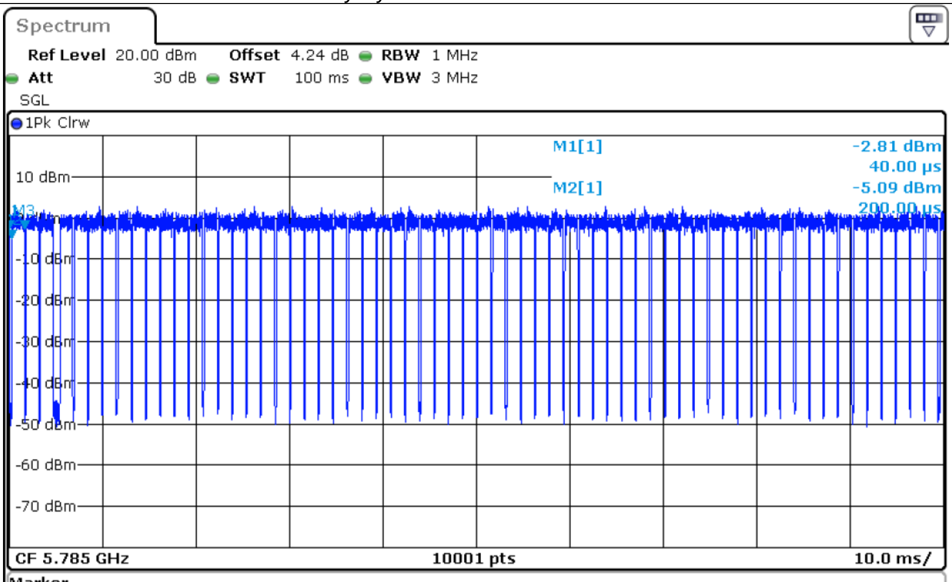
Test Graphs

Duty Cycle NVNT a 5745MHz Ant1



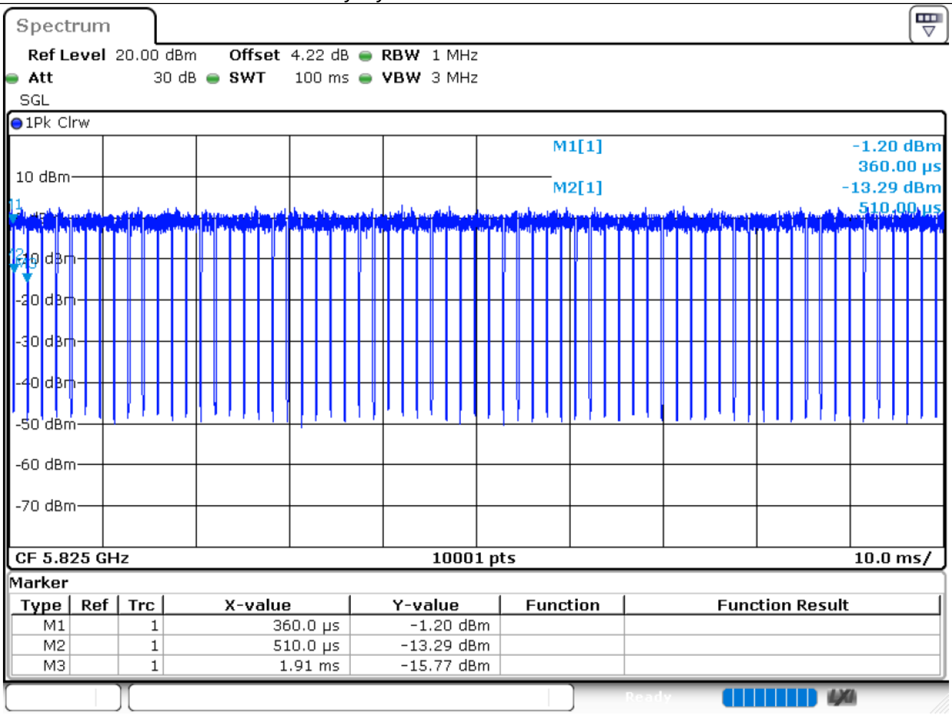
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	450.0 µs	-0.66 dBm		
M2		1	600.0 µs	-1.98 dBm		
M3		1	1.99 ms	-0.89 dBm		

Duty Cycle NVNT a 5785MHz Ant1

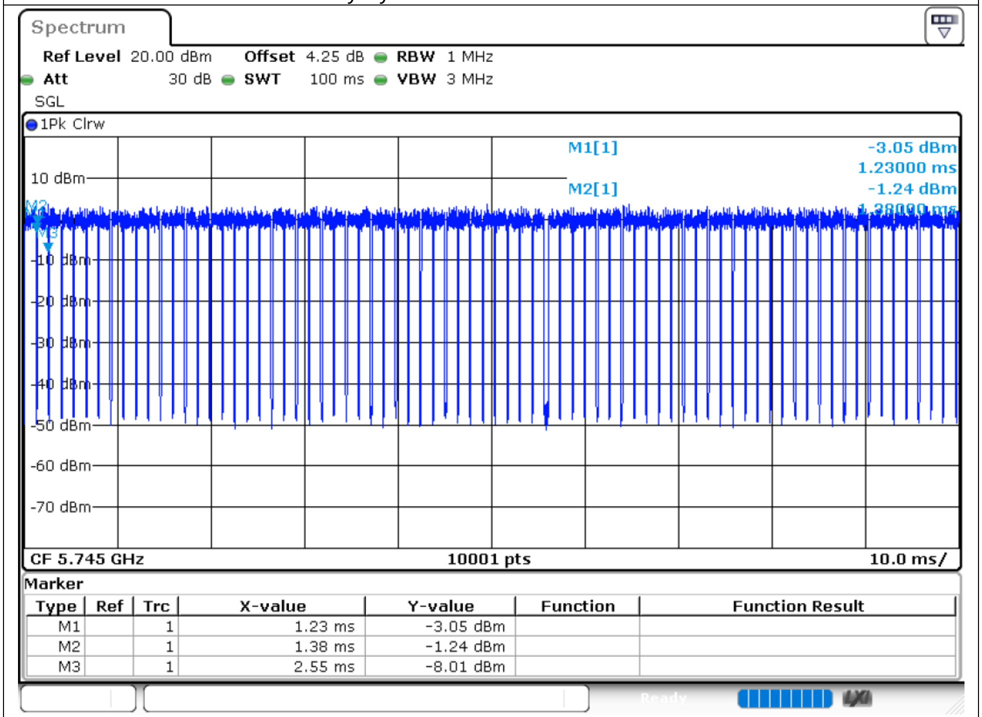


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	40.0 µs	-2.81 dBm		
M2		1	200.0 µs	-5.09 dBm		
M3		1	1.59 ms	-2.78 dBm		

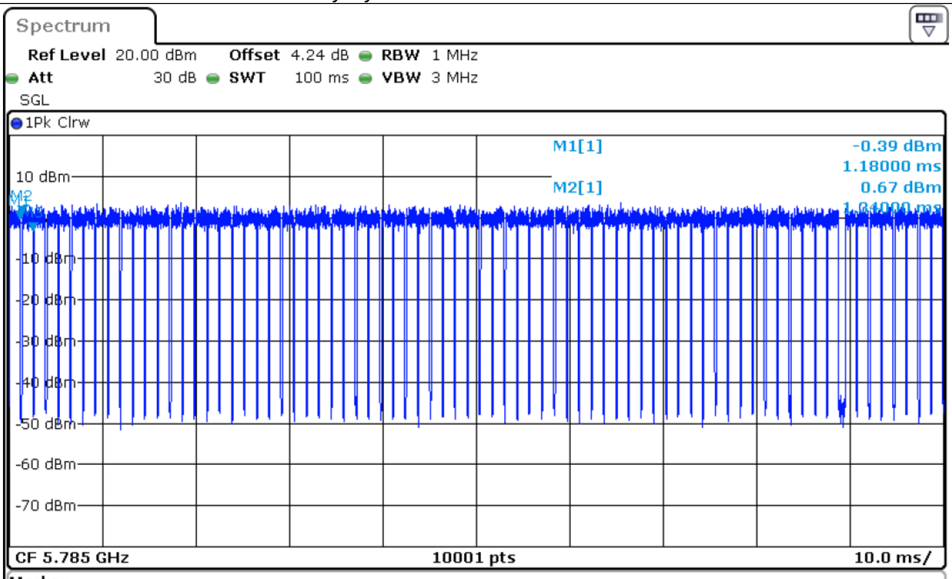
Duty Cycle NVNT a 5825MHz Ant1



Duty Cycle NVNT n20 5745MHz Ant1



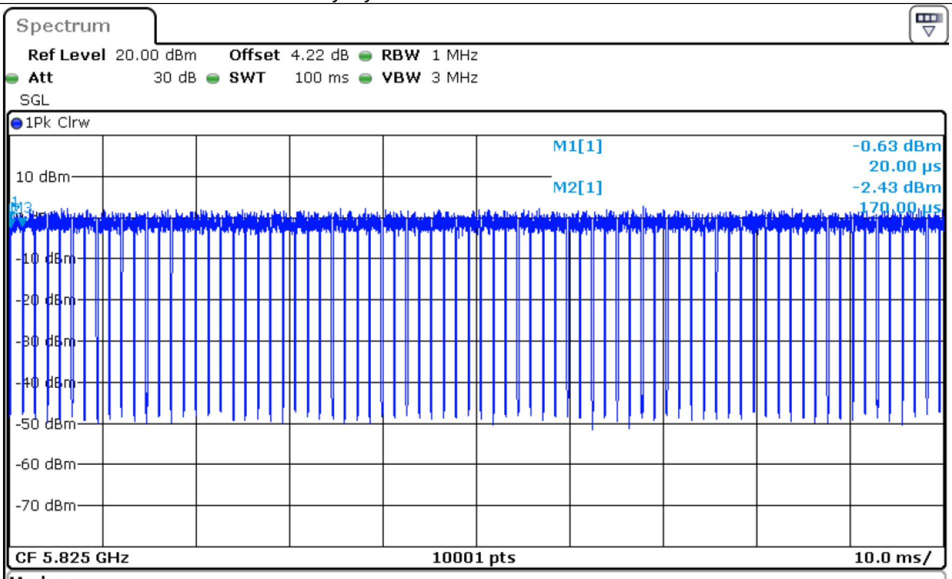
Duty Cycle NVNT n20 5785MHz Ant1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.18 ms	-0.39 dBm		
M2		1	1.34 ms	0.67 dBm		
M3		1	2.5 ms	-3.24 dBm		

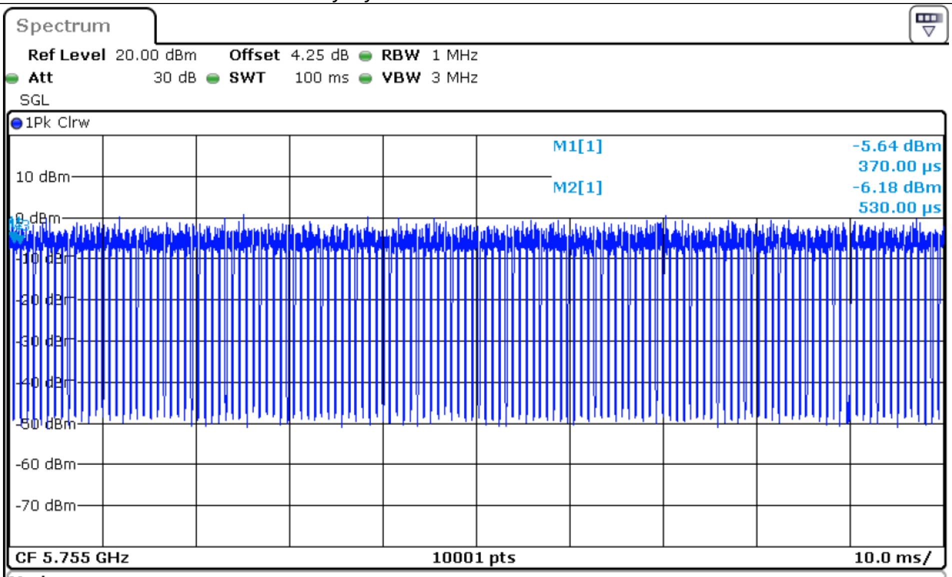
Duty Cycle NVNT n20 5825MHz Ant1



Marker

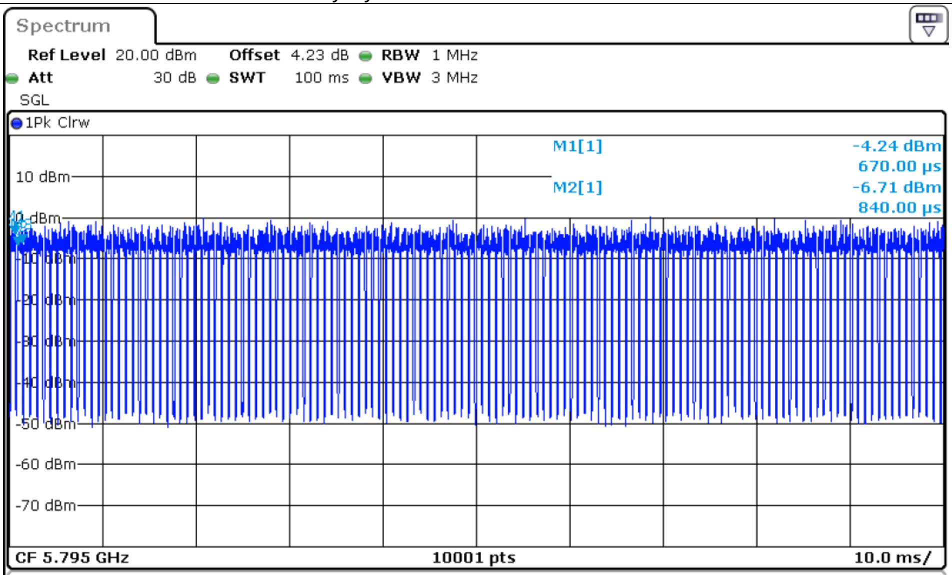
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	20.0 µs	-0.63 dBm		
M2		1	170.0 µs	-2.43 dBm		
M3		1	1.33 ms	-2.12 dBm		

Duty Cycle NVNT n40 5755MHz Ant1



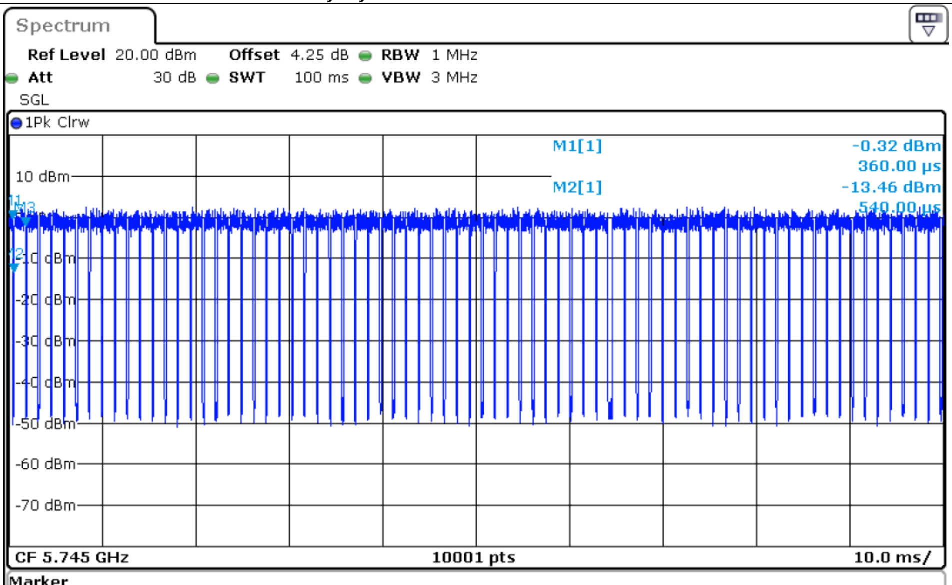
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	370.0 µs	-5.64 dBm		
M2		1	530.0 µs	-6.18 dBm		
M3		1	1.1 ms	-6.56 dBm		

Duty Cycle NVNT n40 5795MHz Ant1



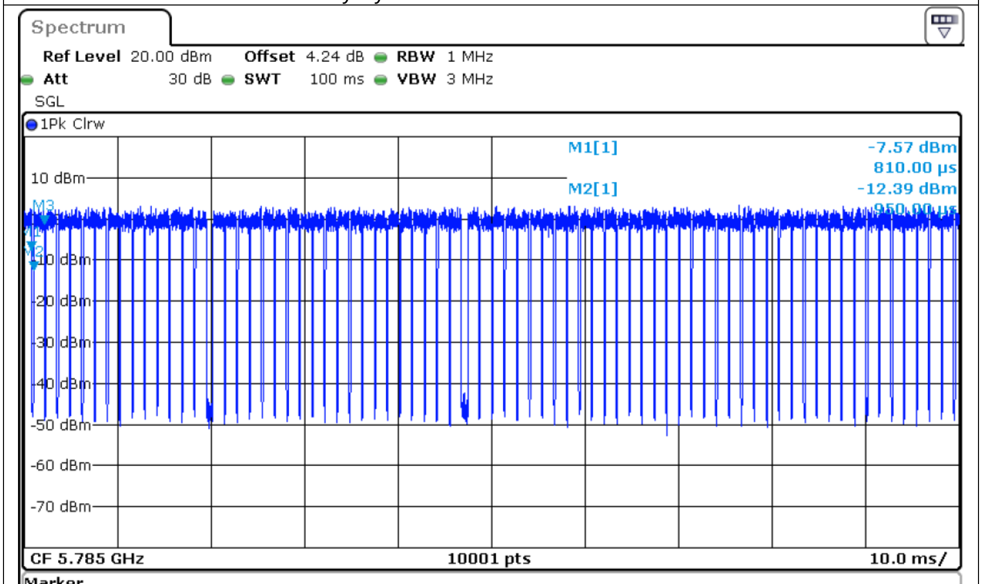
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	670.0 µs	-4.24 dBm		
M2		1	840.0 µs	-6.71 dBm		
M3		1	1.41 ms	-6.29 dBm		

Duty Cycle NVNT ac20 5745MHz Ant1



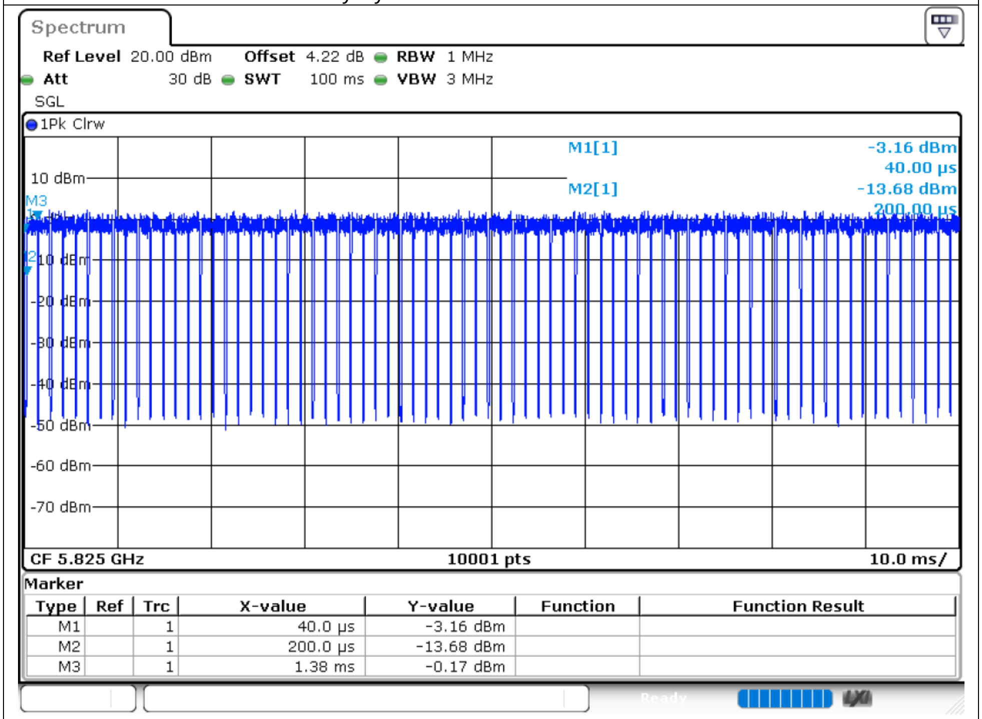
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	360.0 µs	-0.32 dBm		
M2		1	540.0 µs	-13.46 dBm		
M3		1	1.73 ms	-1.99 dBm		

Duty Cycle NVNT ac20 5785MHz Ant1

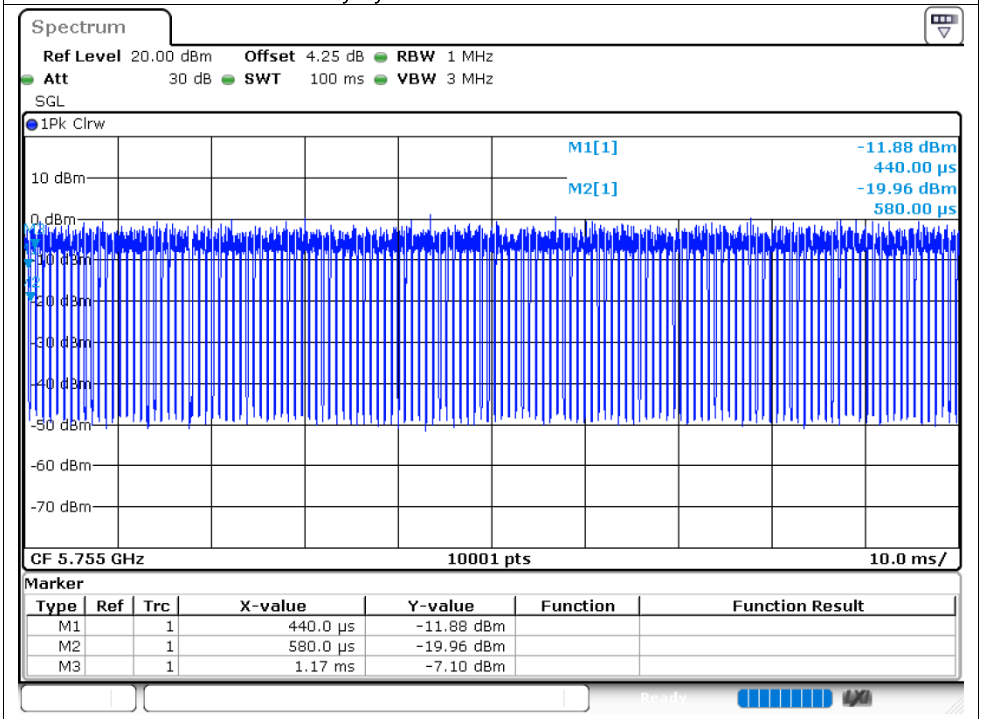


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	810.0 µs	-7.57 dBm		
M2		1	950.0 µs	-12.39 dBm		
M3		1	2.13 ms	-1.21 dBm		

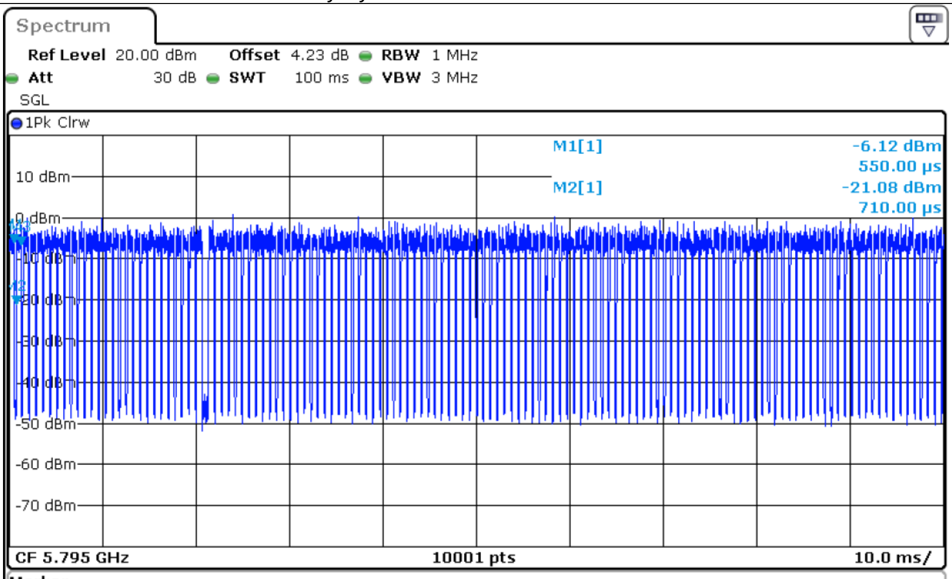
Duty Cycle NVNT ac20 5825MHz Ant1



Duty Cycle NVNT ac40 5755MHz Ant1

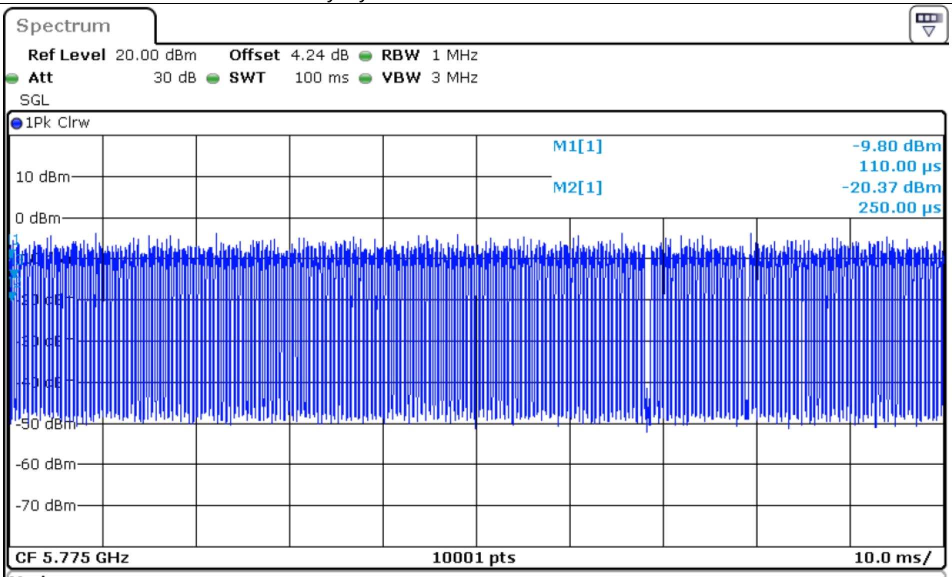


Duty Cycle NVNT ac40 5795MHz Ant1



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	550.0 µs	-6.12 dBm		
M2		1	710.0 µs	-21.08 dBm		
M3		1	1.3 ms	-6.65 dBm		

Duty Cycle NVNT ac80 5775MHz Ant1



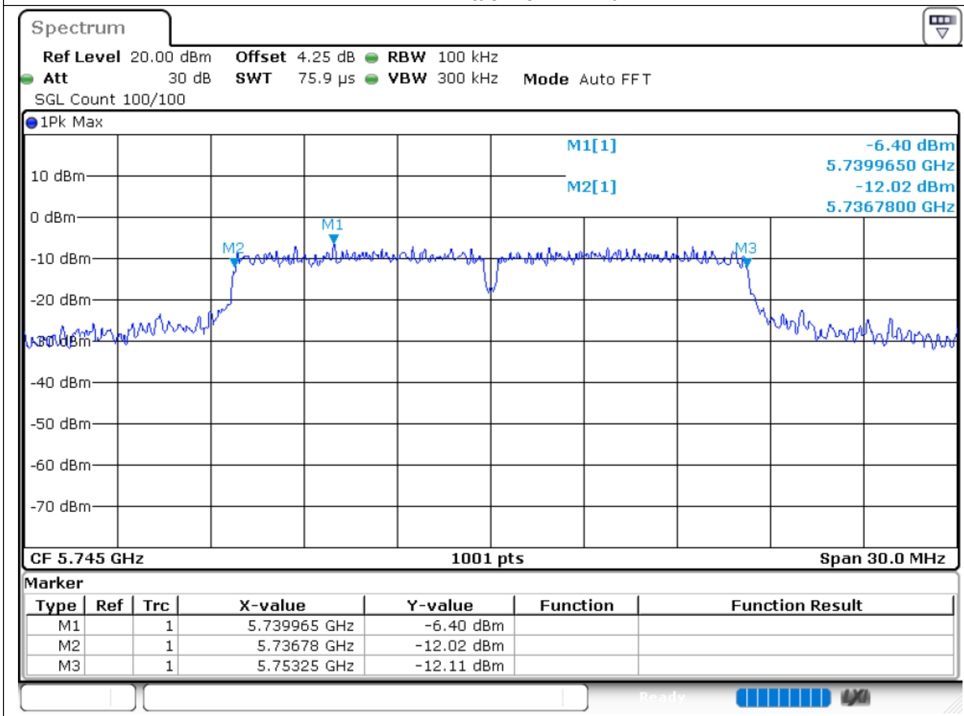
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	110.0 µs	-9.80 dBm		
M2		1	250.0 µs	-20.37 dBm		
M3		1	550.0 µs	-14.88 dBm		

10.2 -6dB Emission Bandwidth

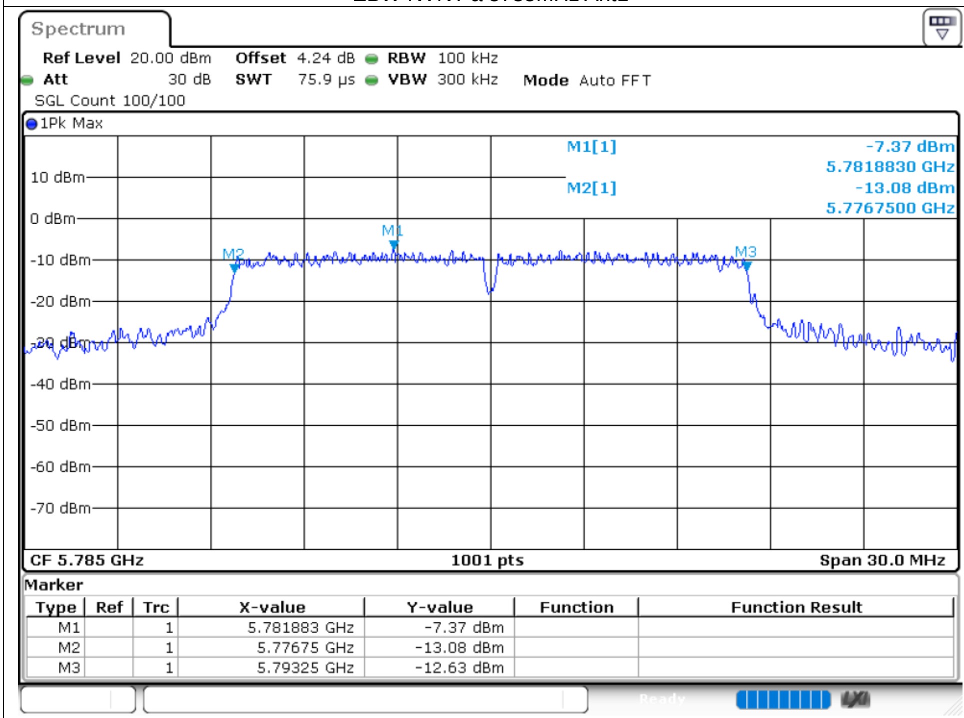
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	a	5745	Ant1	16.47	0.5	Pass
NVNT	a	5785	Ant1	16.5	0.5	Pass
NVNT	a	5825	Ant1	16.47	0.5	Pass
NVNT	n20	5745	Ant1	17.25	0.5	Pass
NVNT	n20	5785	Ant1	16.74	0.5	Pass
NVNT	n20	5825	Ant1	16.95	0.5	Pass
NVNT	n40	5755	Ant1	35.4	0.5	Pass
NVNT	n40	5795	Ant1	35.4	0.5	Pass
NVNT	ac20	5745	Ant1	16.74	0.5	Pass
NVNT	ac20	5785	Ant1	17.64	0.5	Pass
NVNT	ac20	5825	Ant1	17.28	0.5	Pass
NVNT	ac40	5755	Ant1	36.48	0.5	Pass
NVNT	ac40	5795	Ant1	35.1	0.5	Pass
NVNT	ac80	5775	Ant1	75.12	0.5	Pass

Test Graphs

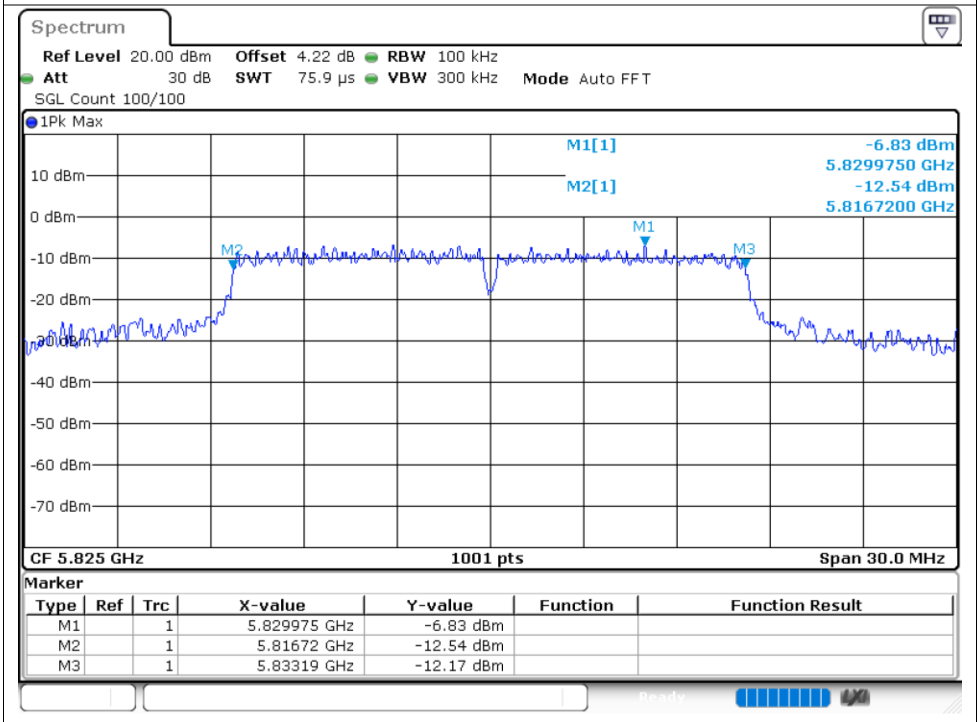
EBW NVNT a 5745MHz Ant1



EBW NVNT a 5785MHz Ant1

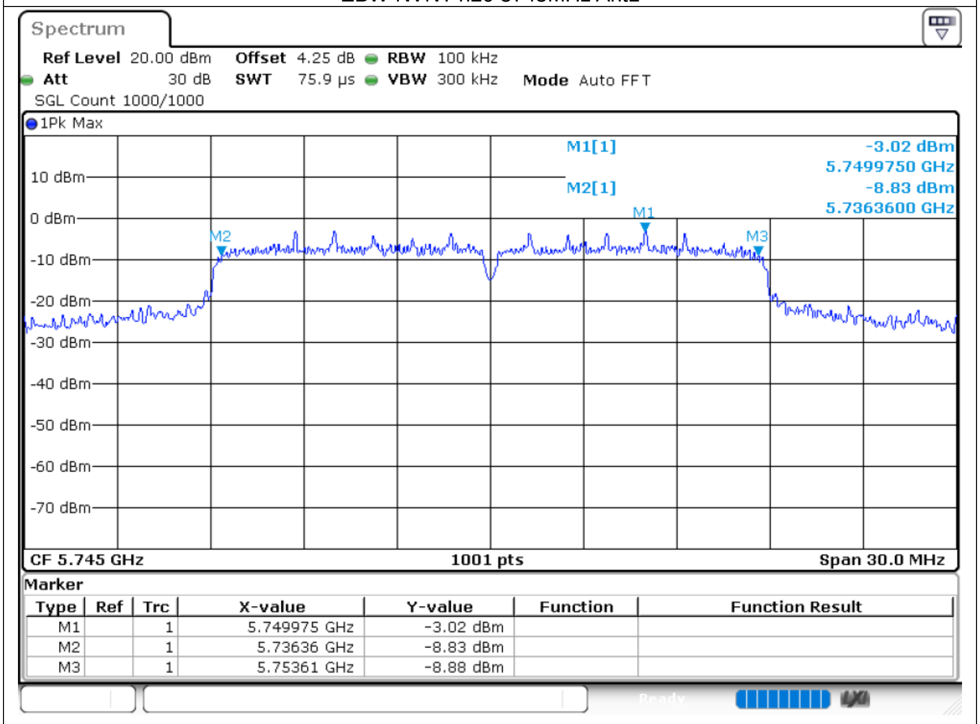


EBW NVNT a 5825MHz Ant1



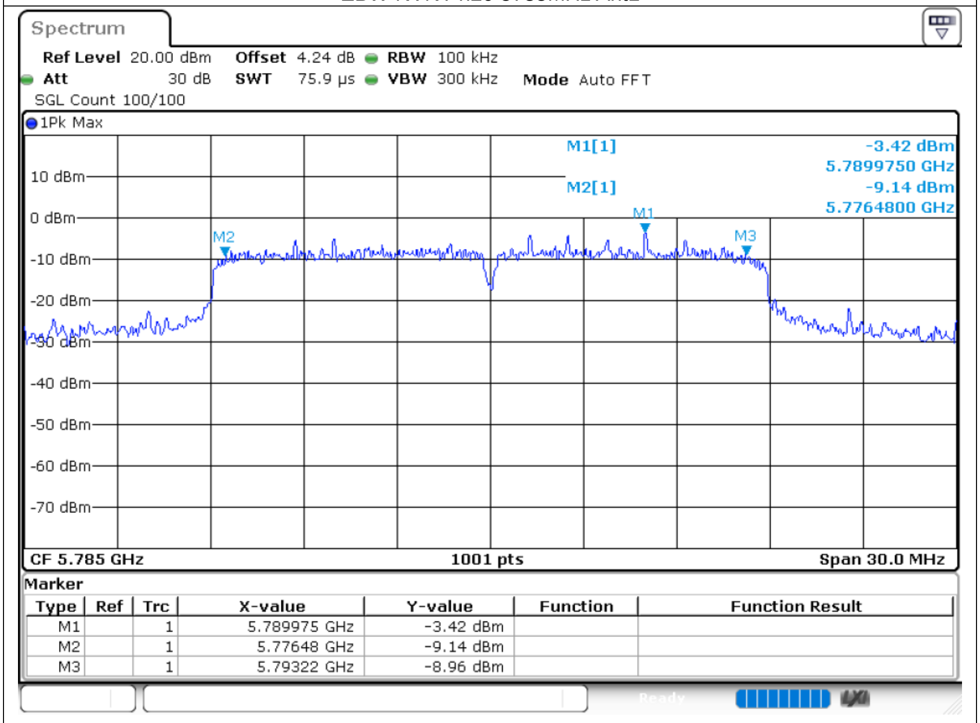
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.829975 GHz	-6.83 dBm		
M2		1	5.81672 GHz	-12.54 dBm		
M3		1	5.83319 GHz	-12.17 dBm		

EBW NVNT n20 5745MHz Ant1

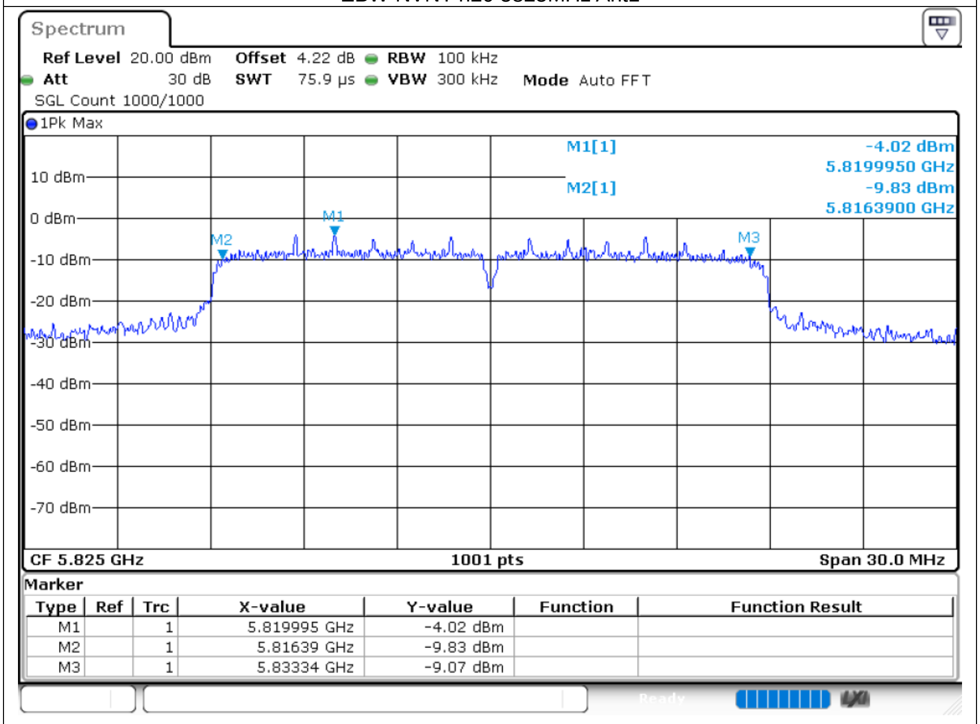


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.749975 GHz	-3.02 dBm		
M2		1	5.73636 GHz	-8.83 dBm		
M3		1	5.75361 GHz	-8.88 dBm		

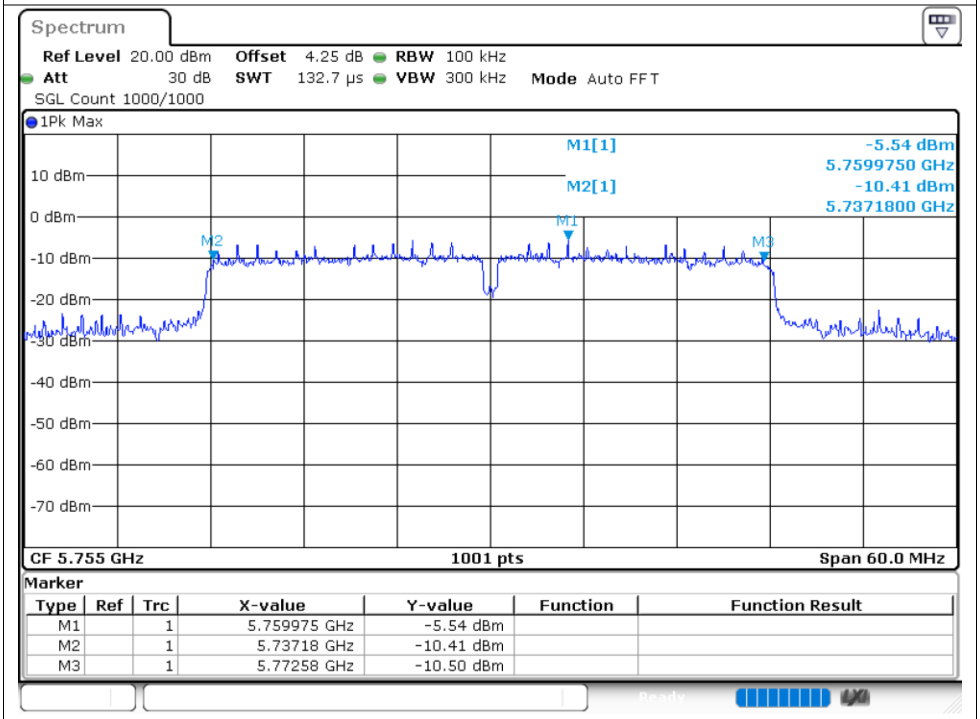
EBW NVNT n20 5785MHz Ant1



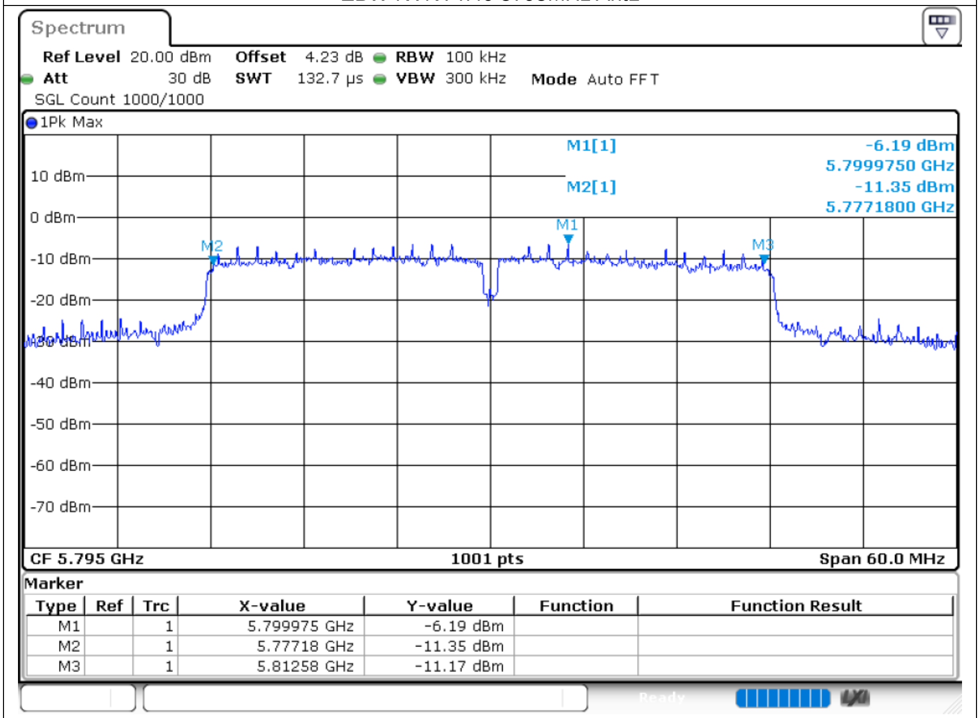
EBW NVNT n20 5825MHz Ant1



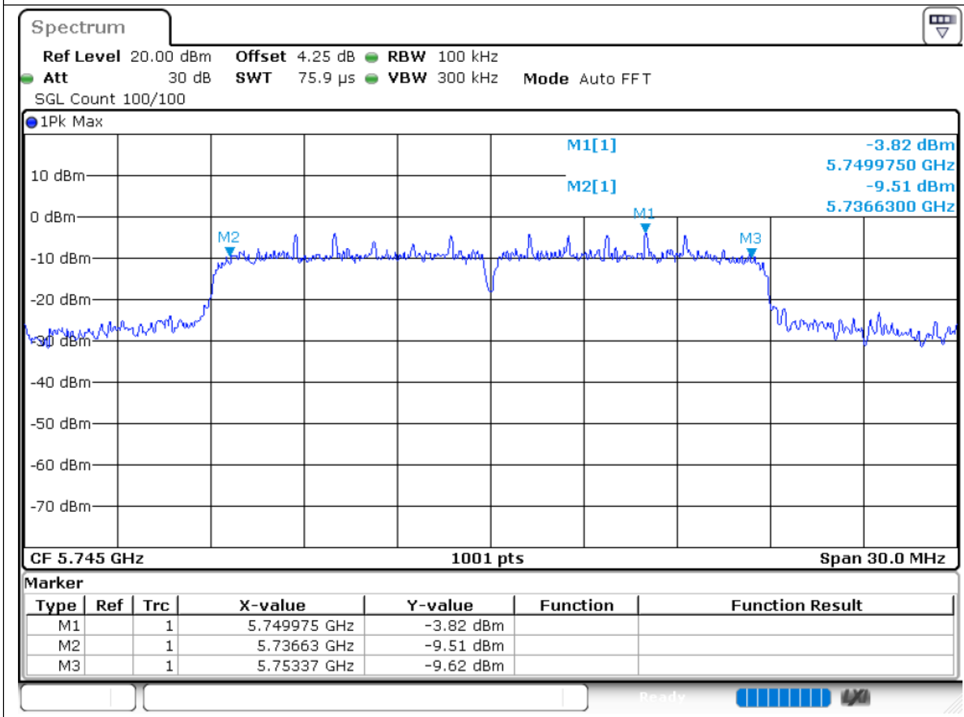
EBW NVNT n40 5755MHz Ant1



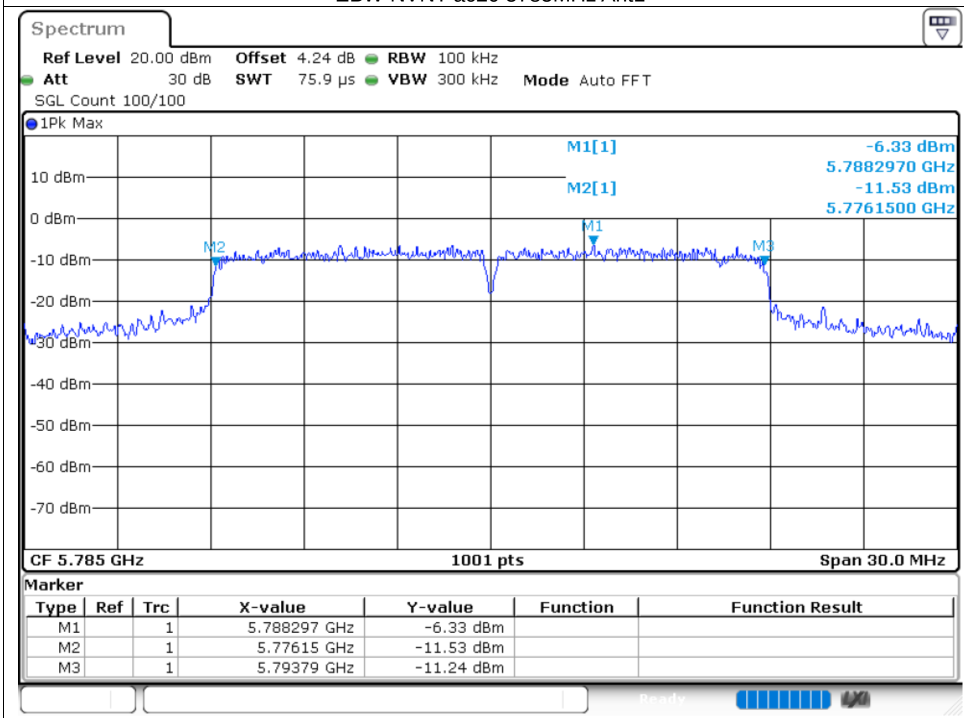
EBW NVNT n40 5795MHz Ant1



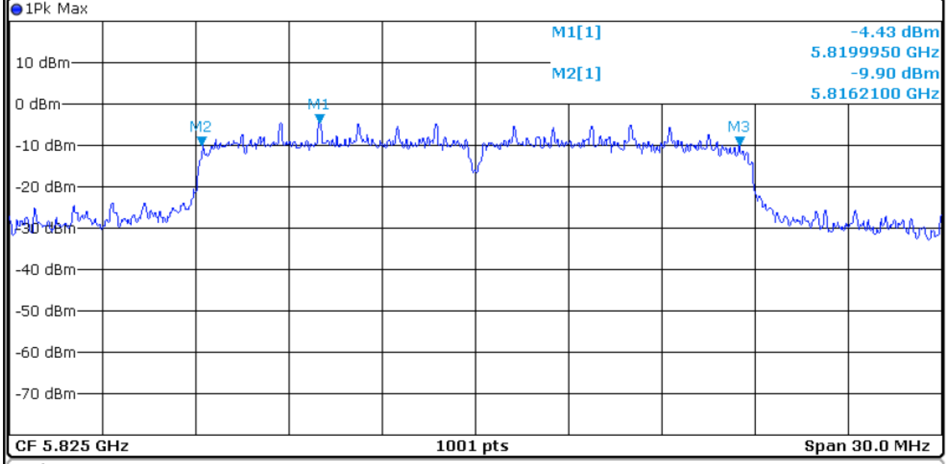
EBW NVNT ac20 5745MHz Ant1



EBW NVNT ac20 5785MHz Ant1

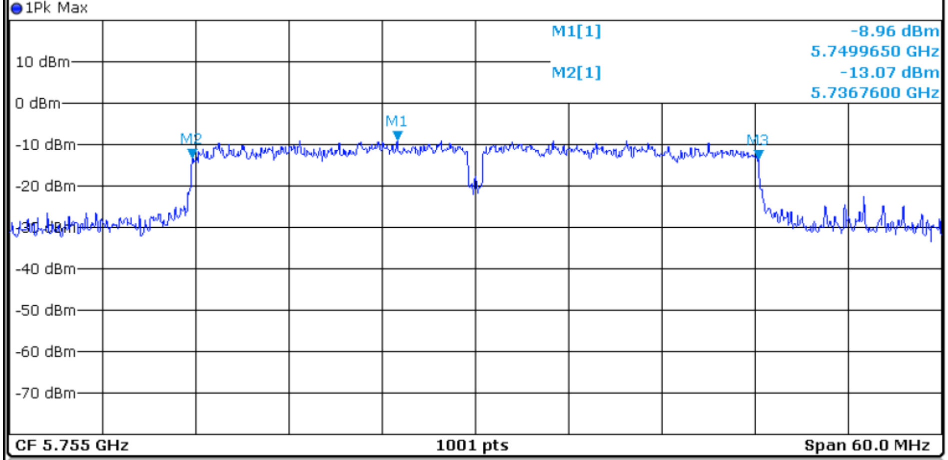


EBW NVNT ac20 5825MHz Ant1



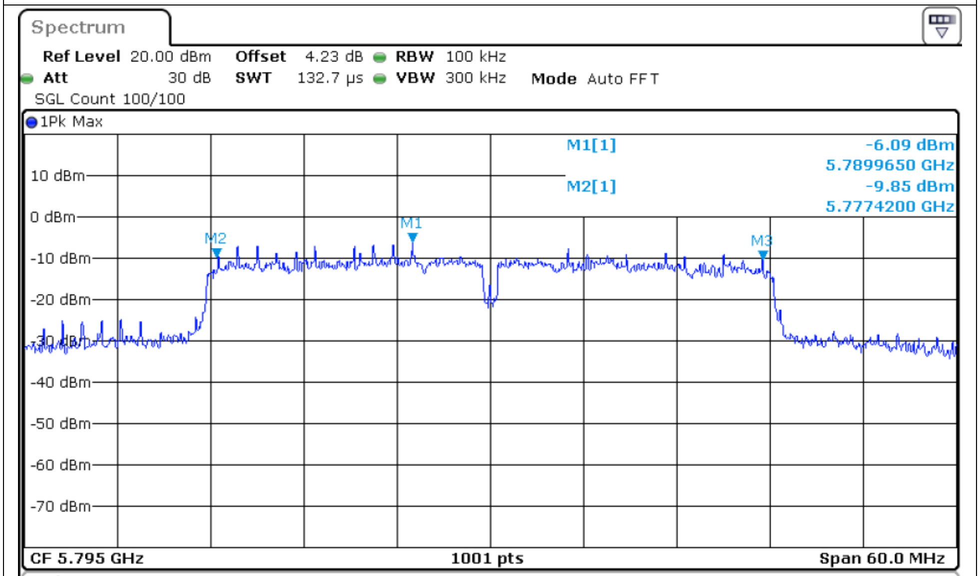
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.819995 GHz	-4.43 dBm		
M2		1	5.81621 GHz	-9.90 dBm		
M3		1	5.83349 GHz	-9.87 dBm		

EBW NVNT ac40 5755MHz Ant1



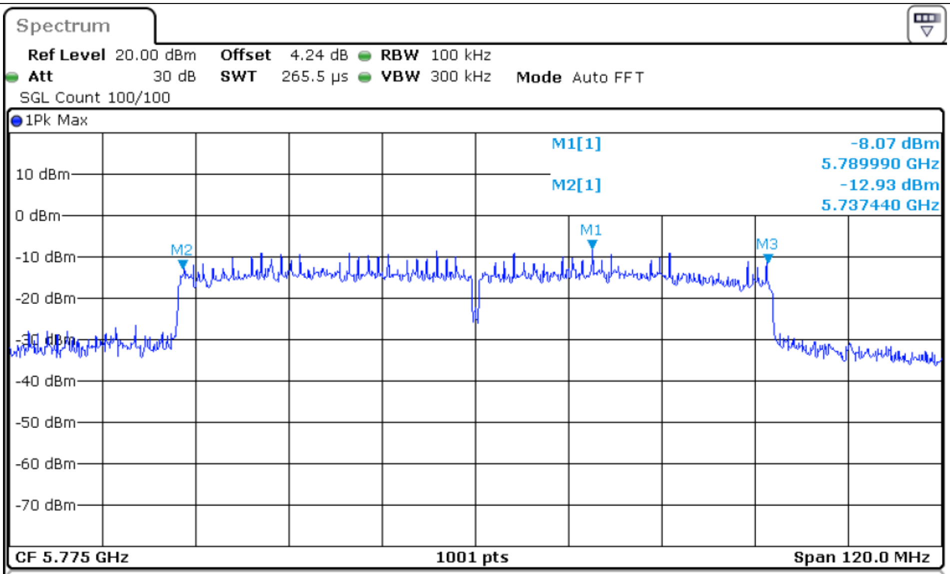
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.749965 GHz	-8.96 dBm		
M2		1	5.73676 GHz	-13.07 dBm		
M3		1	5.77324 GHz	-13.50 dBm		

EBW NVNT ac40 5795MHz Ant1



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.789965 GHz	-6.09 dBm		
M2		1	5.77742 GHz	-9.85 dBm		
M3		1	5.81252 GHz	-10.24 dBm		

EBW NVNT ac80 5775MHz Ant1



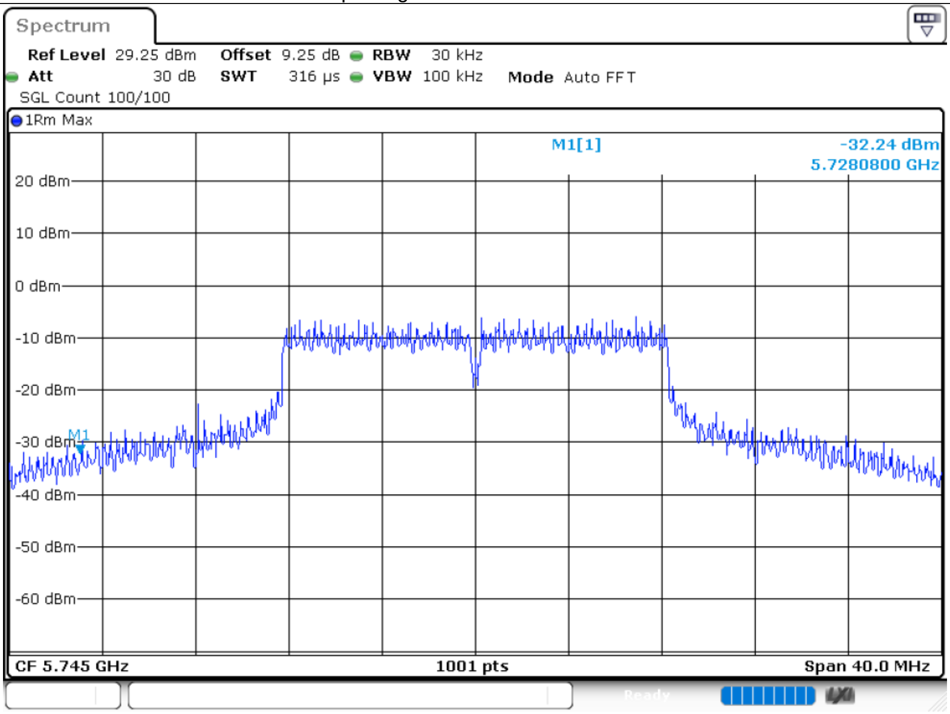
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.78999 GHz	-8.07 dBm		
M2		1	5.73744 GHz	-12.93 dBm		
M3		1	5.81256 GHz	-11.42 dBm		

10.3 Frequency Range

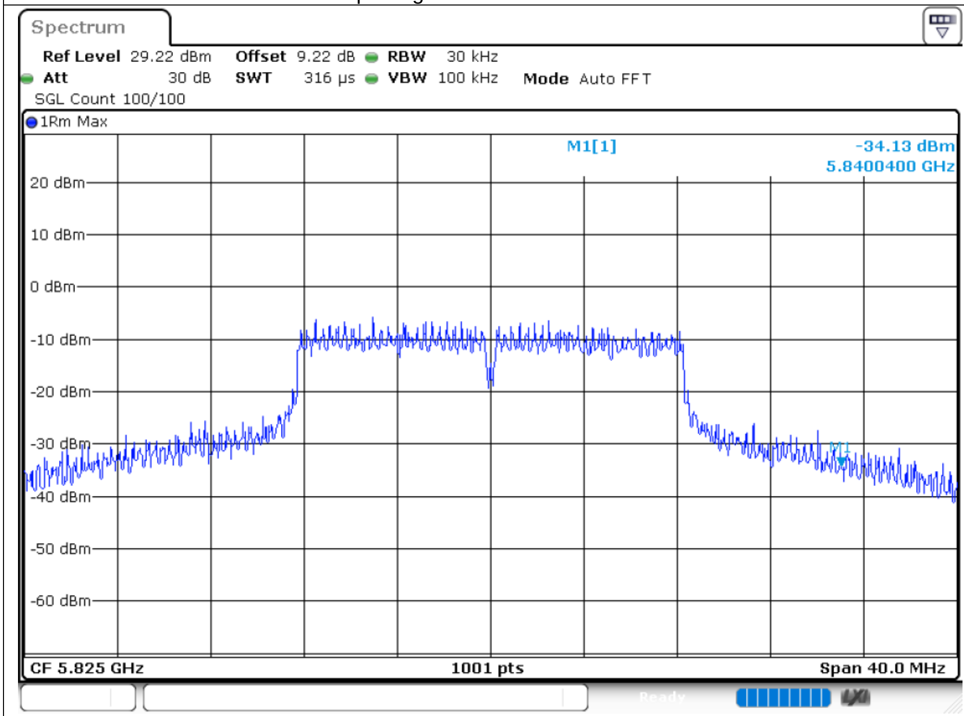
Condition	Mode	Frequency (MHz)	Antenna	Frequency Range (MHz)	Limit (MHz)	Verdict
NVNT	a	5745	Ant1	5728.08	>=5725	Pass
NVNT	a	5825	Ant1	5840.04	<=5875	Pass
NVNT	n20	5745	Ant1	5725.2	>=5725	Pass
NVNT	n20	5825	Ant1	5838.52	<=5875	Pass
NVNT	n40	5755	Ant1	5726.14	>=5725	Pass
NVNT	n40	5795	Ant1	5820.08	<=5875	Pass
NVNT	ac20	5745	Ant1	5728	>=5725	Pass
NVNT	ac20	5825	Ant1	5840.04	<=5875	Pass
NVNT	ac40	5755	Ant1	5725.54	>=5725	Pass
NVNT	ac40	5795	Ant1	5822.6	<=5875	Pass
NVNT	ac80	5775	Ant1	5736.48	>=5725	Pass

Test Graphs

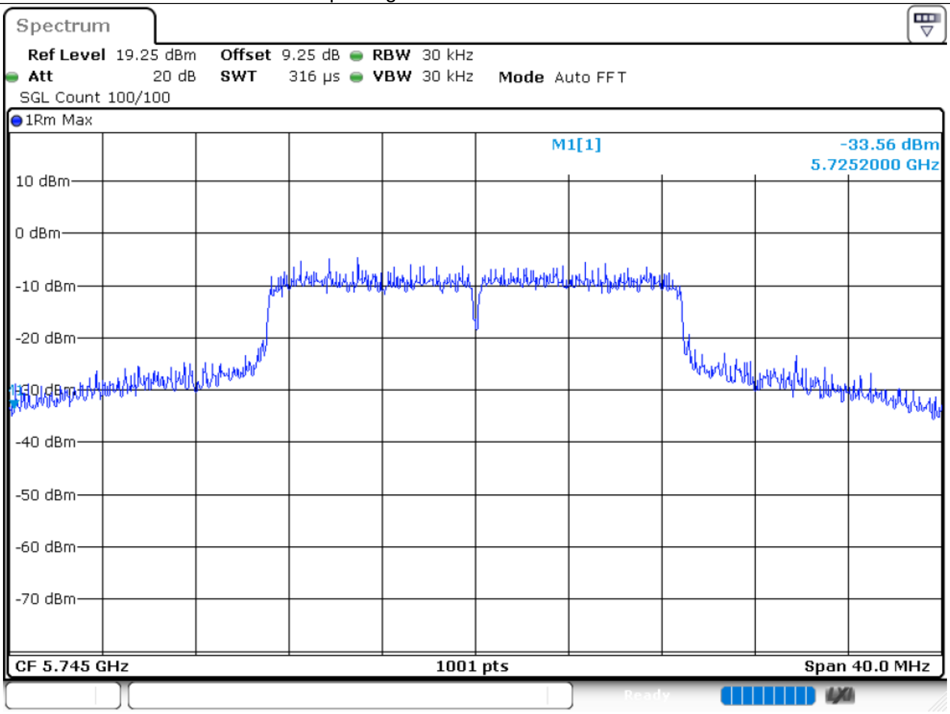
Freq. Range NVNT a 5745MHz Ant1



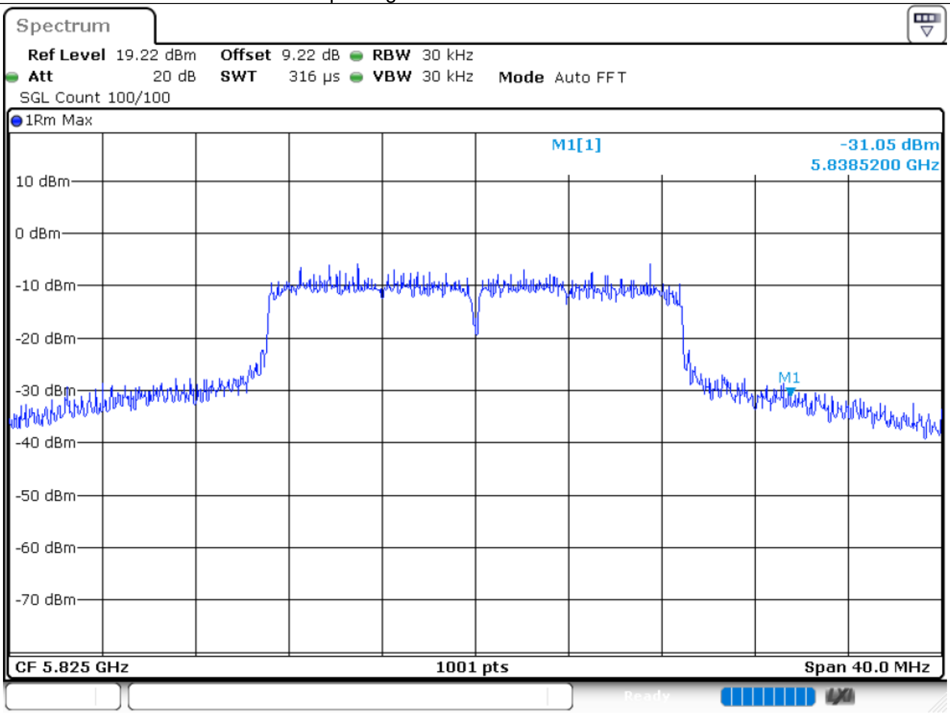
Freq. Range NVNT a 5825MHz Ant1



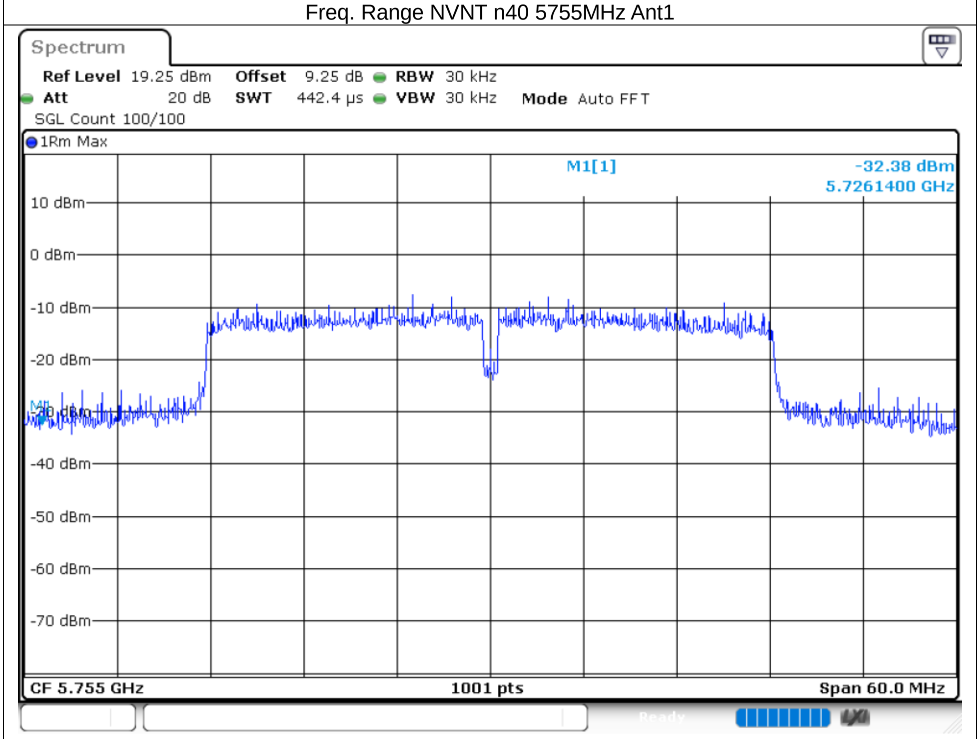
Freq. Range NVNT n20 5745MHz Ant1



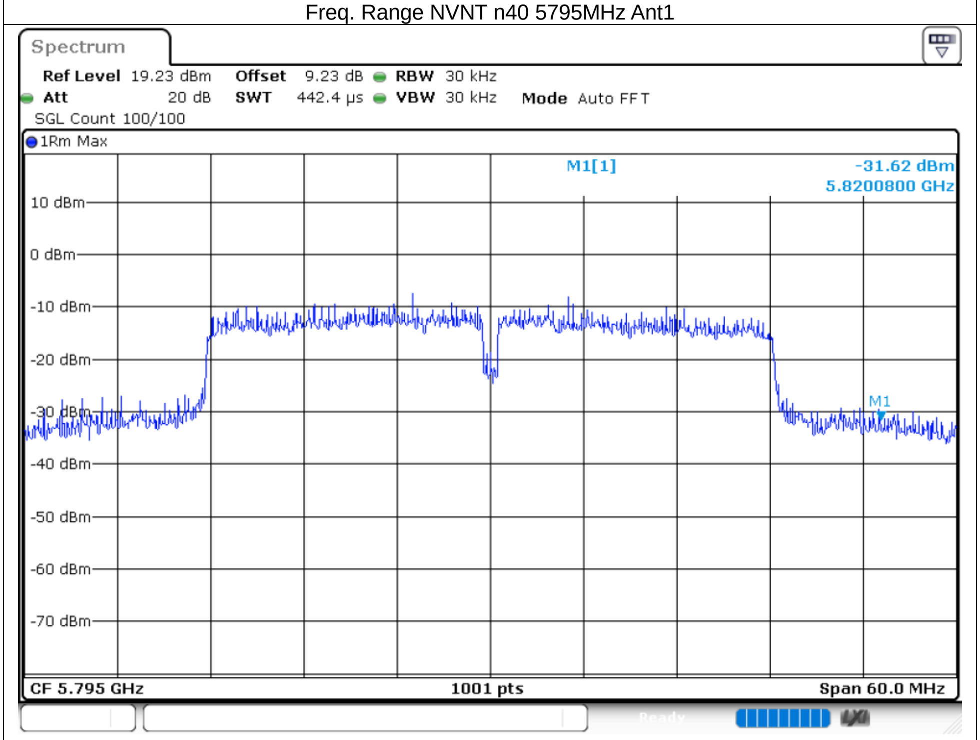
Freq. Range NVNT n20 5825MHz Ant1



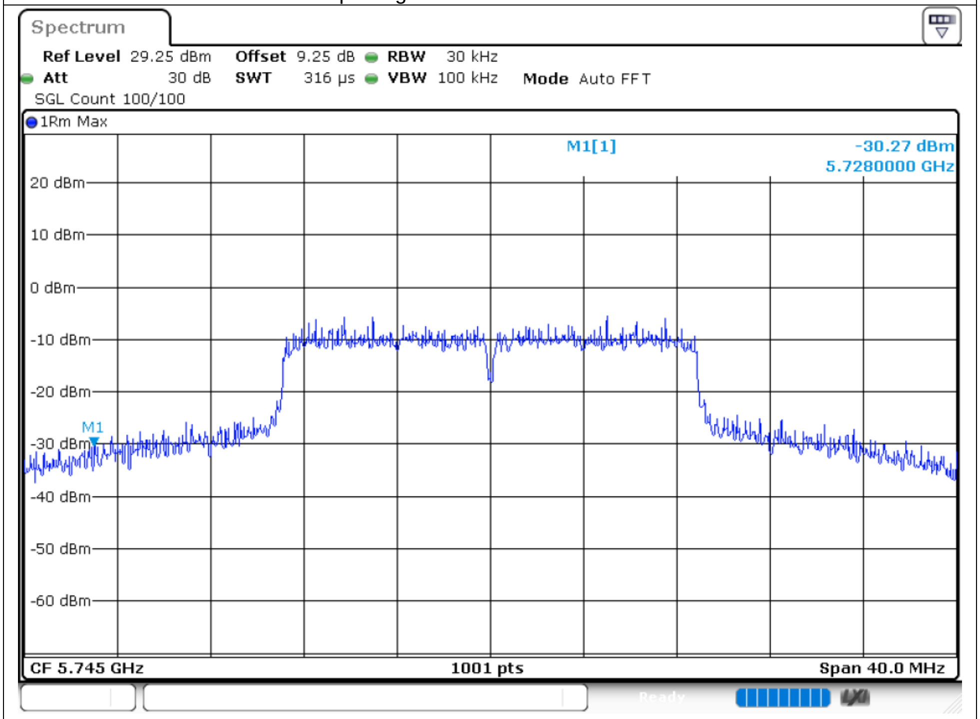
Freq. Range NVNT n40 5755MHz Ant1



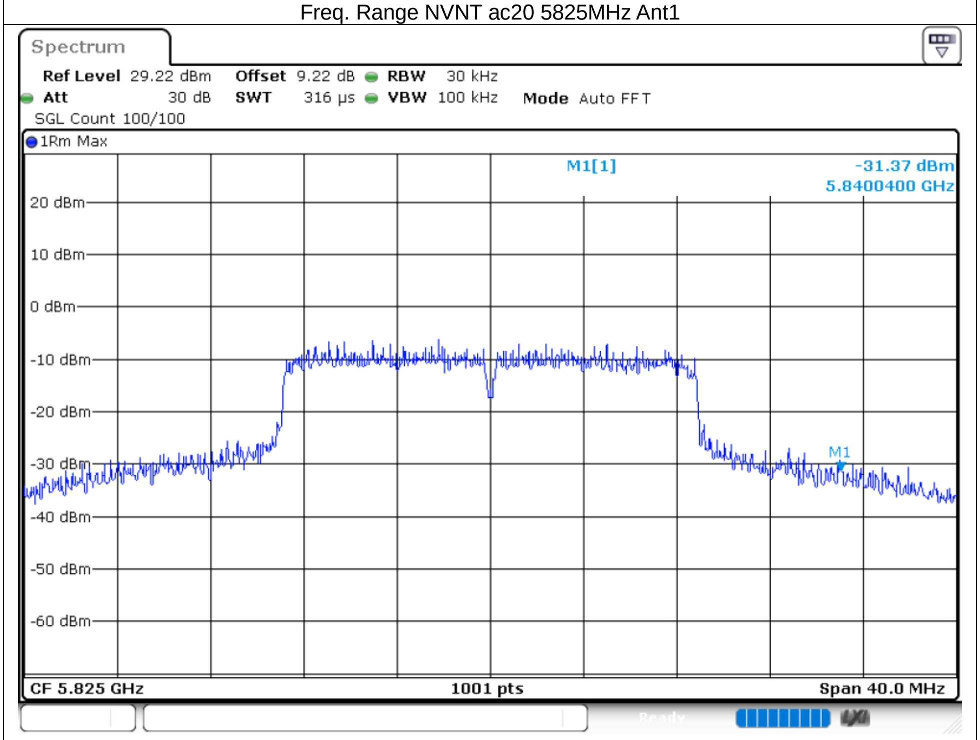
Freq. Range NVNT n40 5795MHz Ant1



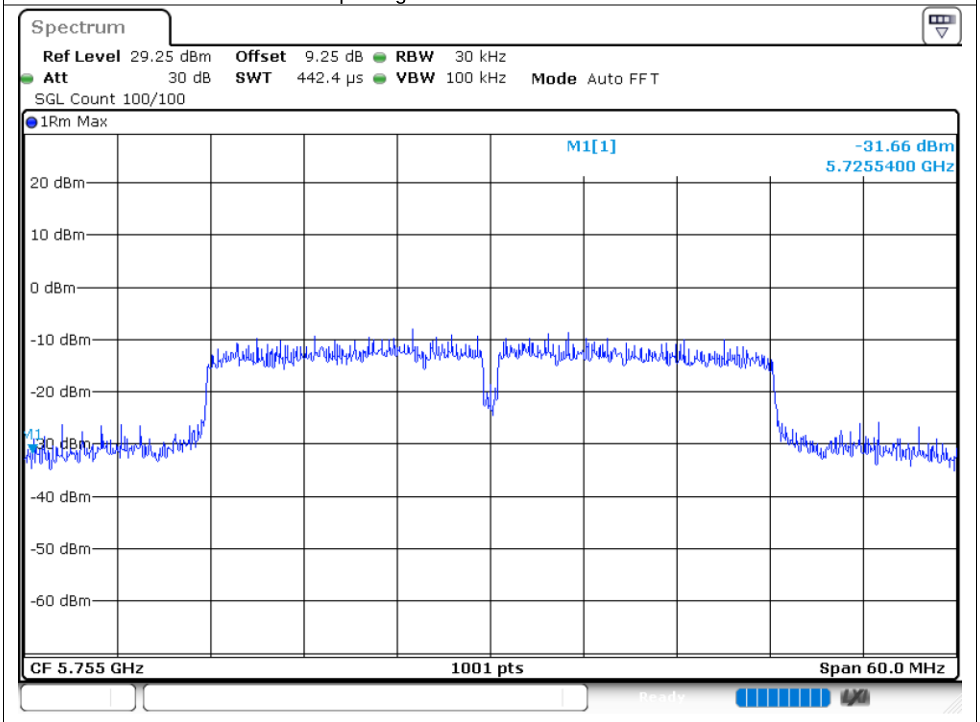
Freq. Range NVNT ac20 5745MHz Ant1



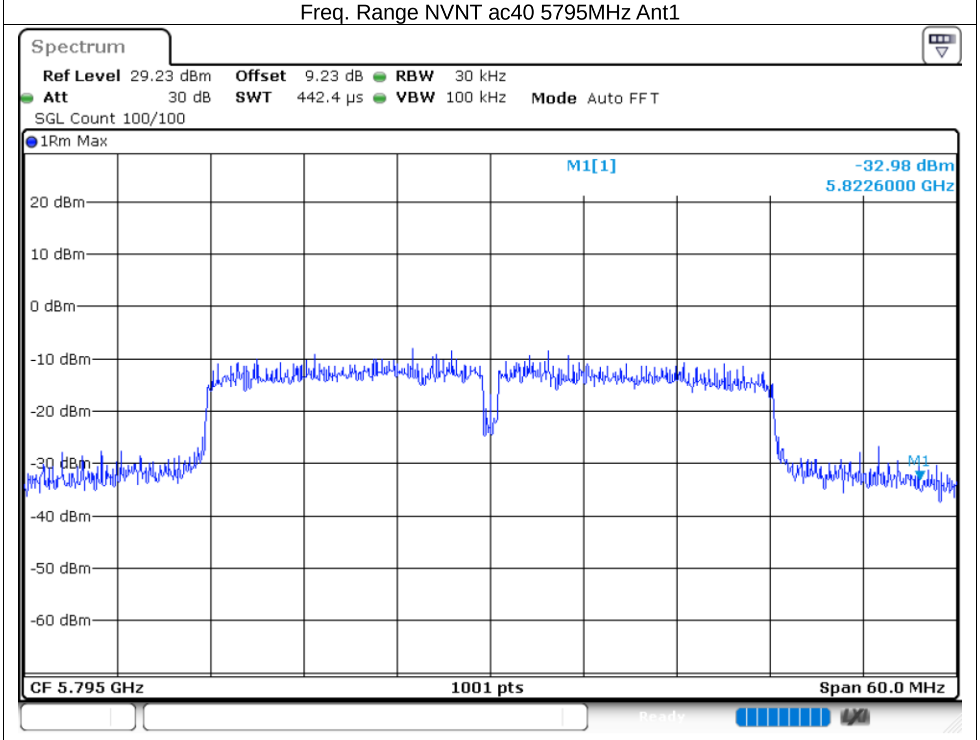
Freq. Range NVNT ac20 5825MHz Ant1



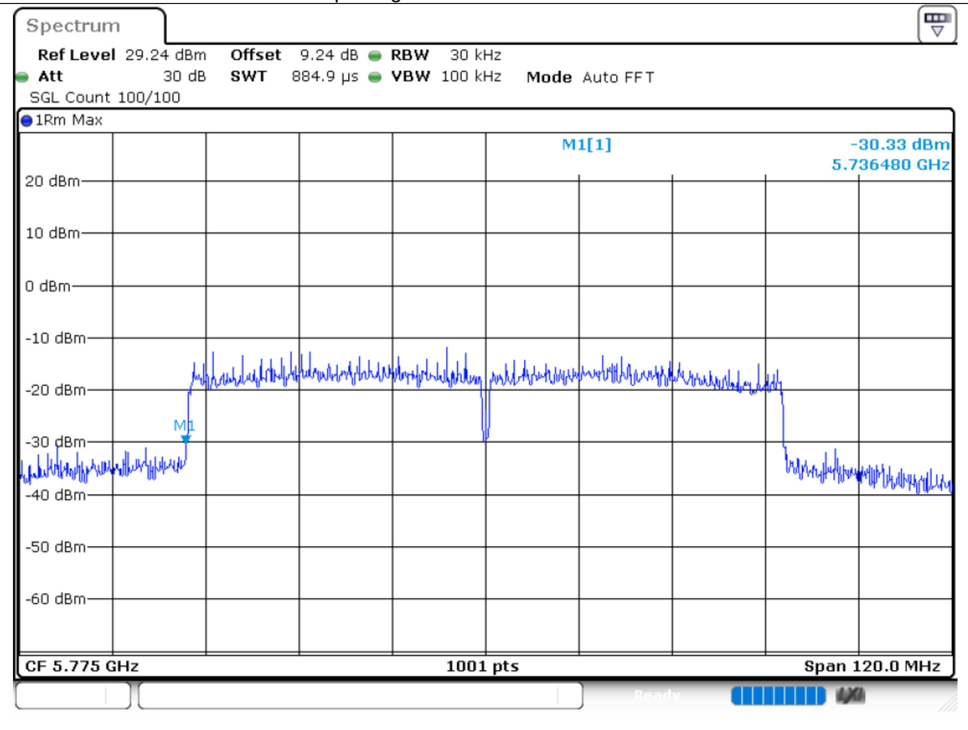
Freq. Range NVNT ac40 5755MHz Ant1



Freq. Range NVNT ac40 5795MHz Ant1



Freq. Range NVNT ac80 5775MHz Ant1

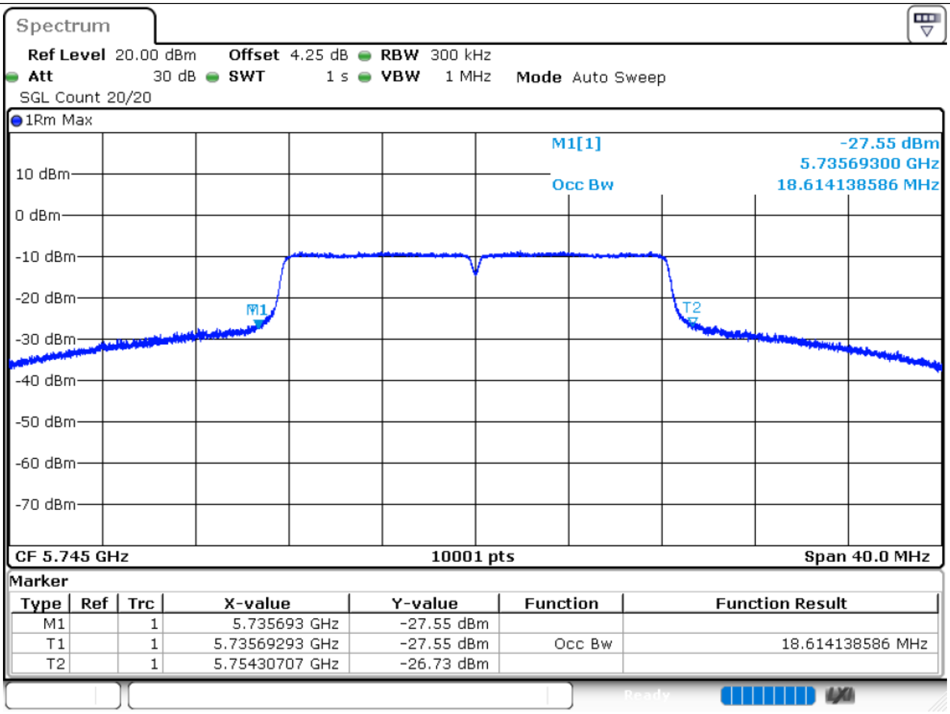


10.4 Occupied Channel Bandwidth

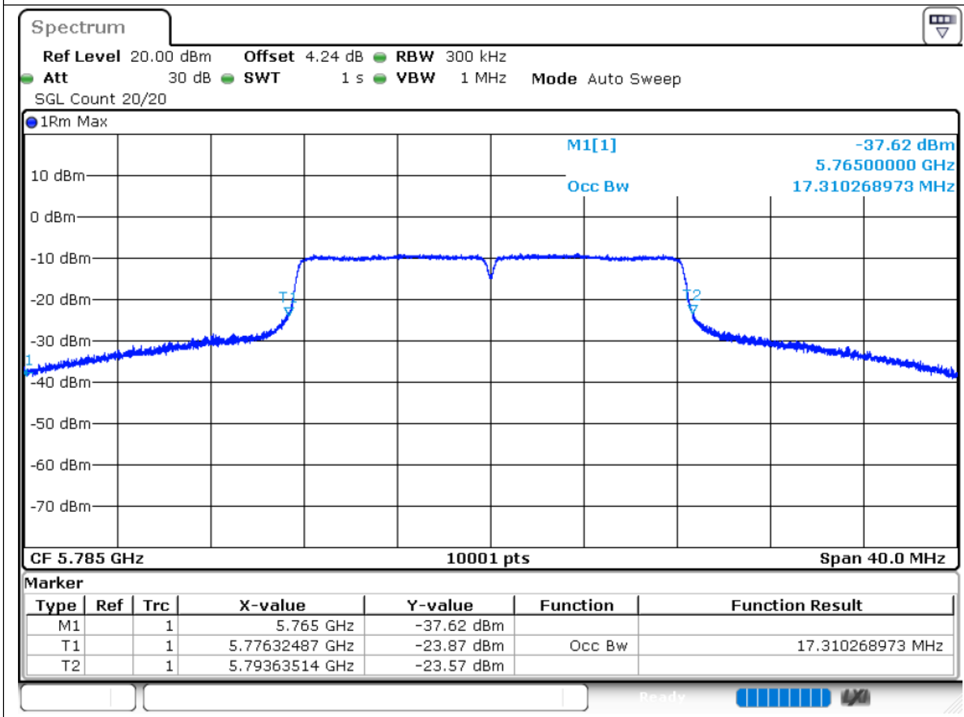
Condition	Mode	Frequency (MHz)	Antenna	Center Frequency (MHz)	OBW (MHz)	Verdict
NVNT	a	5745	Ant1	5745	18.614	Pass
NVNT	a	5785	Ant1	5784.98	17.31	Pass
NVNT	a	5825	Ant1	5824.736	17.494	Pass
NVNT	n20	5745	Ant1	5744.948	20.886	Pass
NVNT	n20	5785	Ant1	5784.976	19.022	Pass
NVNT	n20	5825	Ant1	5824.88	18.158	Pass
NVNT	n40	5755	Ant1	5754.364	42.74	Pass
NVNT	n40	5795	Ant1	5794.18	38.964	Pass
NVNT	ac20	5745	Ant1	5745.04	19.318	Pass
NVNT	ac20	5785	Ant1	5785.026	18.618	Pass
NVNT	ac20	5825	Ant1	5824.83	18.33	Pass
NVNT	ac40	5755	Ant1	5754.772	43.14	Pass
NVNT	ac40	5795	Ant1	5794.7	37.62	Pass
NVNT	ac80	5775	Ant1	5771.528	83.928	Pass

Test Graphs

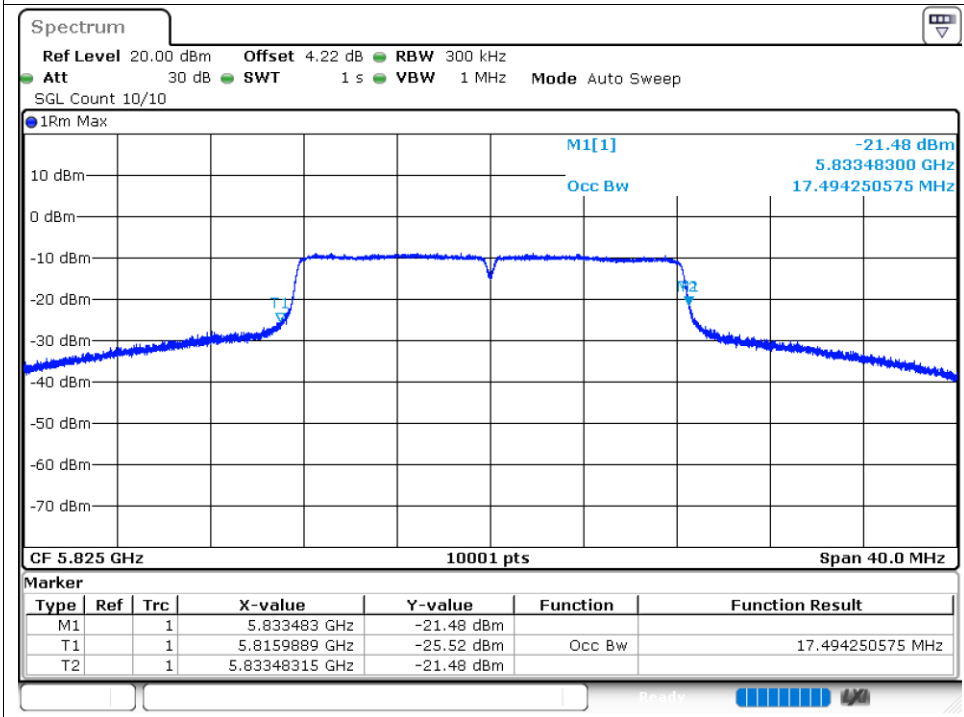
OBW NVNT a 5745MHz Ant1



OBW NVNT a 5785MHz Ant1

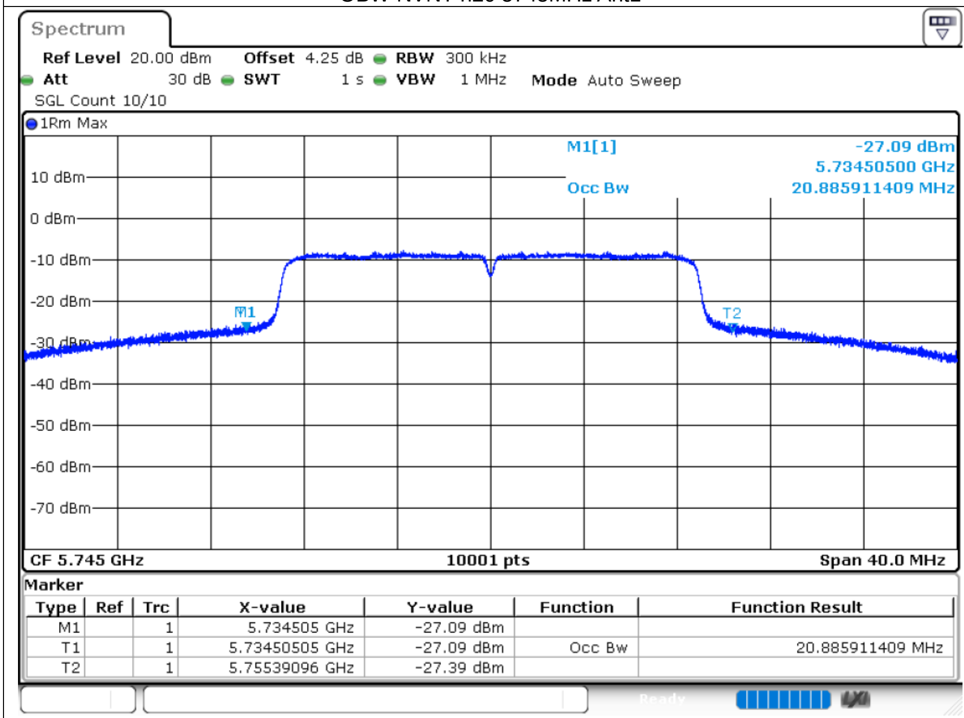


OBW NVNT a 5825MHz Ant1



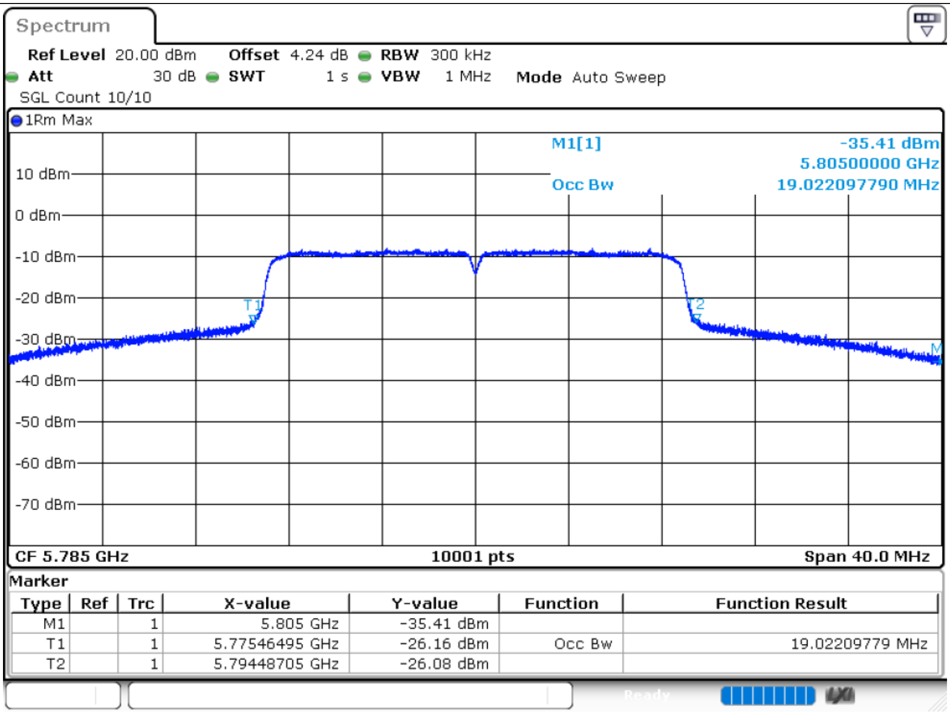
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.833483 GHz	-21.48 dBm		
T1		1	5.8159889 GHz	-25.52 dBm	Occ Bw	17.494250575 MHz
T2		1	5.83348315 GHz	-21.48 dBm		

OBW NVNT n20 5745MHz Ant1



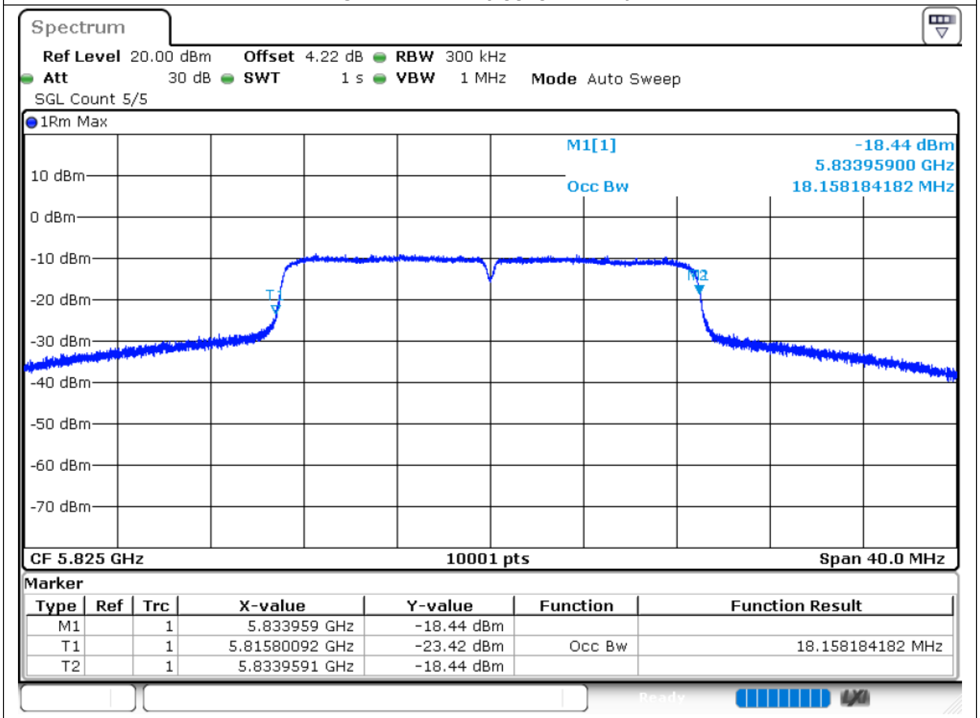
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.734505 GHz	-27.09 dBm		
T1		1	5.73450505 GHz	-27.09 dBm	Occ Bw	20.885911409 MHz
T2		1	5.75539096 GHz	-27.39 dBm		

OBW NVNT n20 5785MHz Ant1



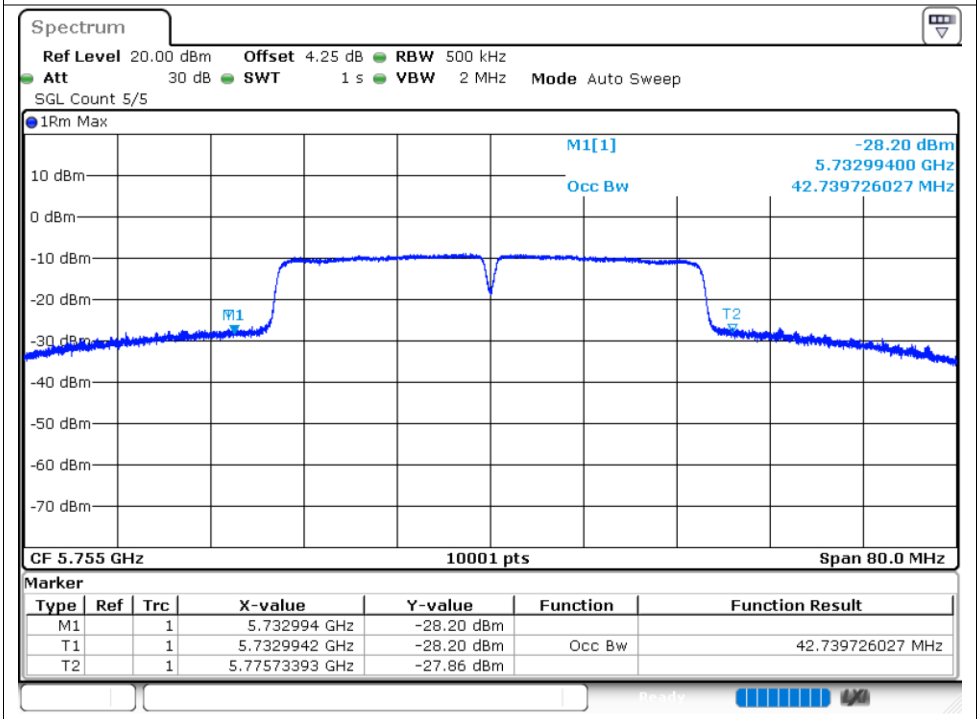
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.805 GHz	-35.41 dBm		
T1		1	5.77546495 GHz	-26.16 dBm	Occ Bw	19.02209779 MHz
T2		1	5.79448705 GHz	-26.08 dBm		

OBW NVNT n20 5825MHz Ant1

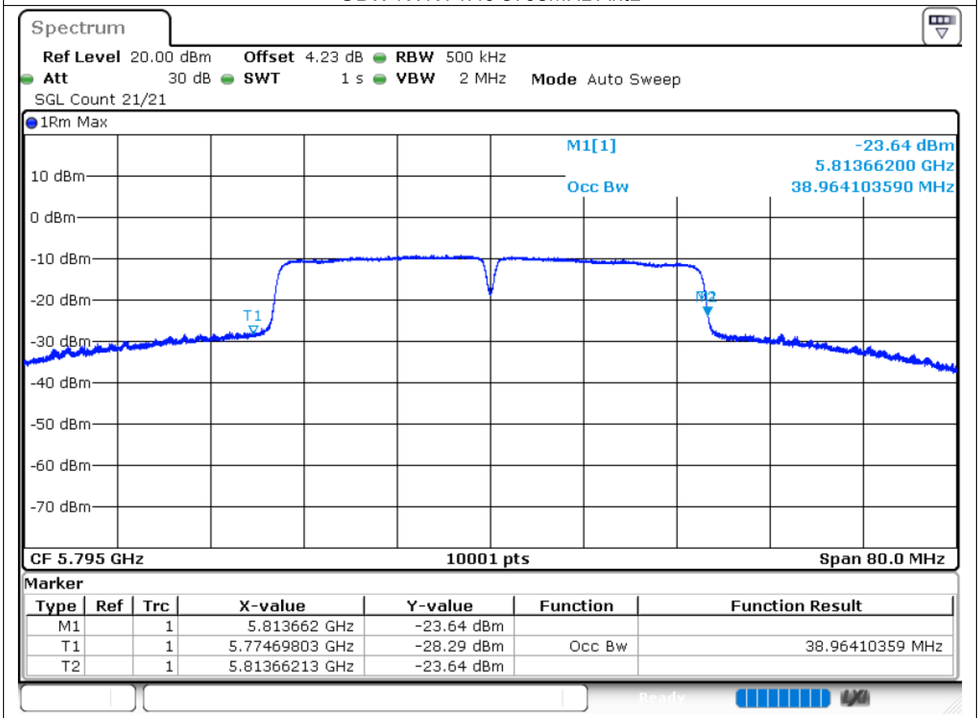


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.833959 GHz	-18.44 dBm		
T1		1	5.81580092 GHz	-23.42 dBm	Occ Bw	18.158184182 MHz
T2		1	5.8339591 GHz	-18.44 dBm		

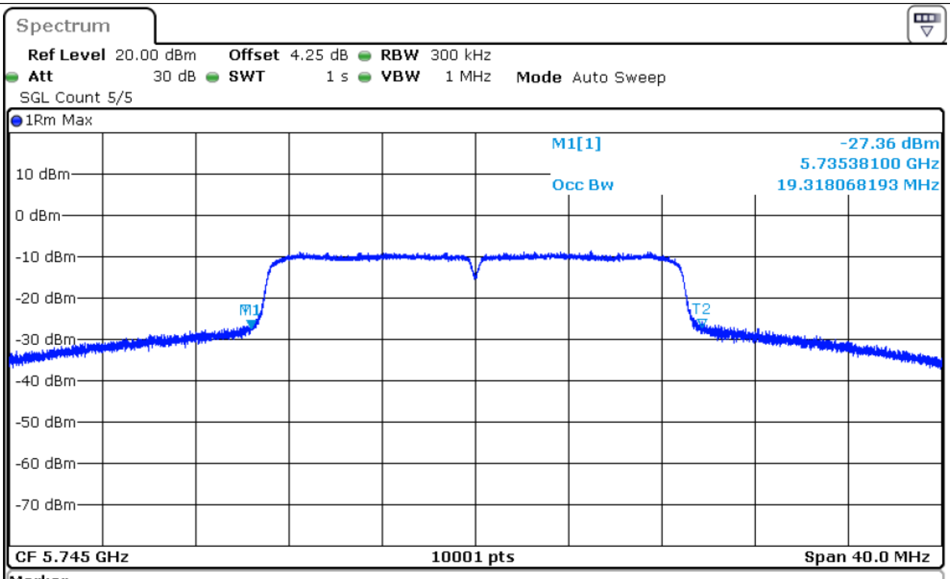
OBW NVNT n40 5755MHz Ant1



OBW NVNT n40 5795MHz Ant1



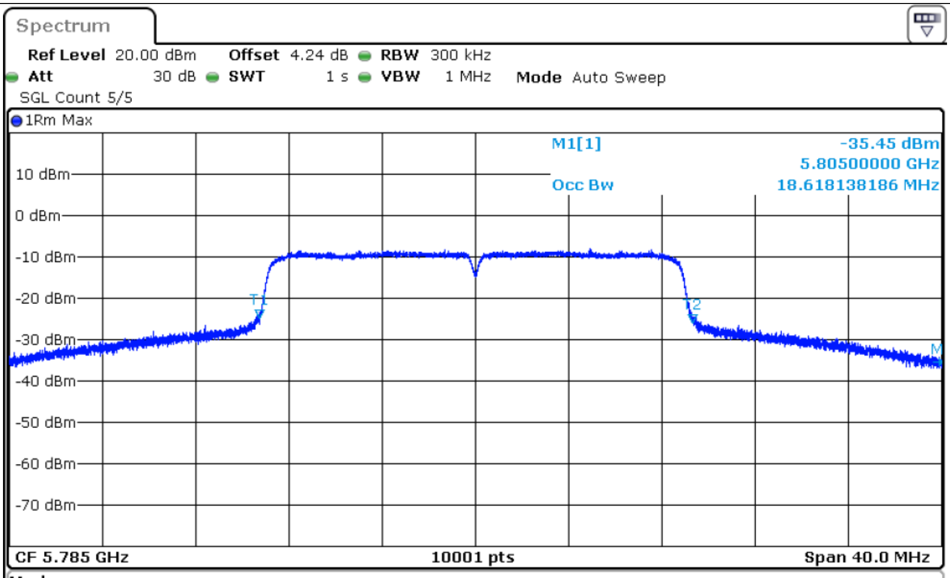
OBW NVNT ac20 5745MHz Ant1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.735381 GHz	-27.36 dBm		
T1		1	5.73538096 GHz	-27.36 dBm	Occ Bw	19.318068193 MHz
T2		1	5.75469903 GHz	-27.15 dBm		

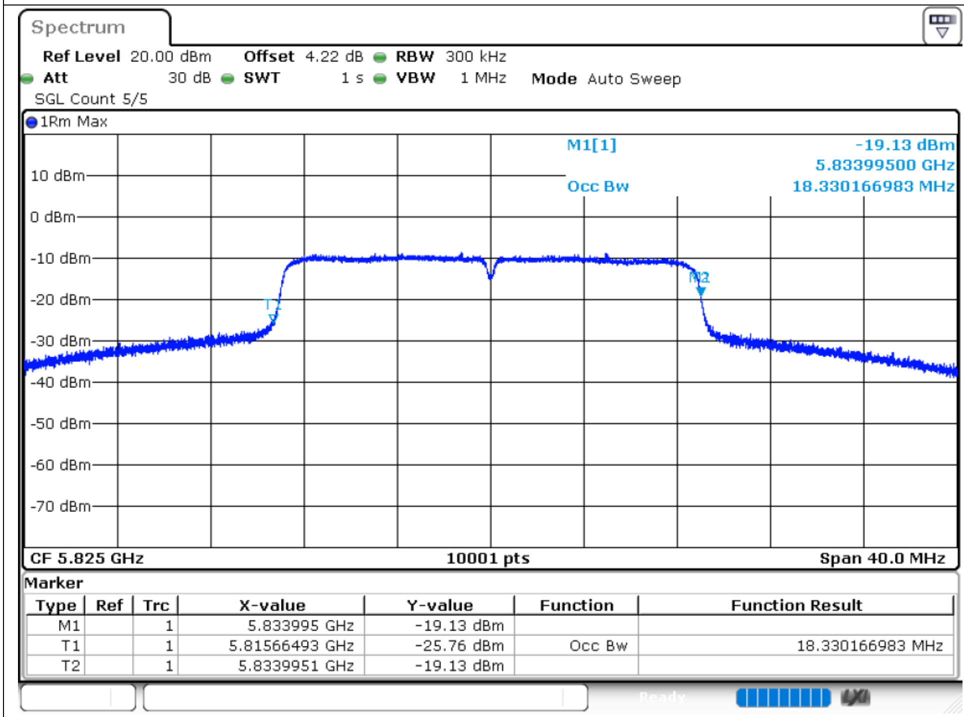
OBW NVNT ac20 5785MHz Ant1



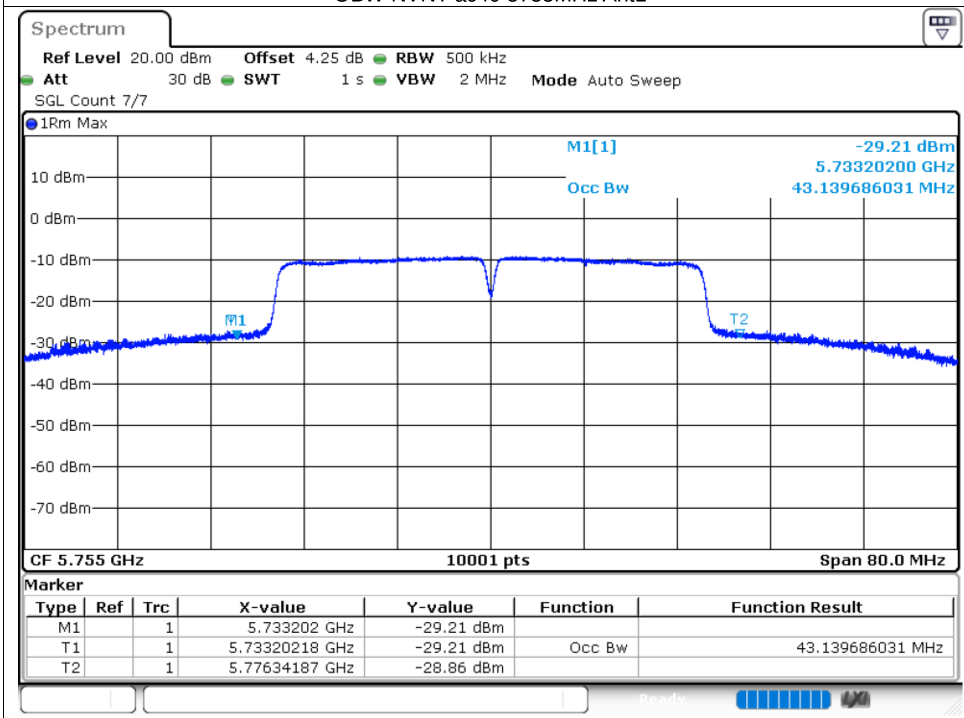
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.805 GHz	-35.45 dBm		
T1		1	5.77571693 GHz	-24.72 dBm	Occ Bw	18.618138186 MHz
T2		1	5.79433507 GHz	-26.01 dBm		

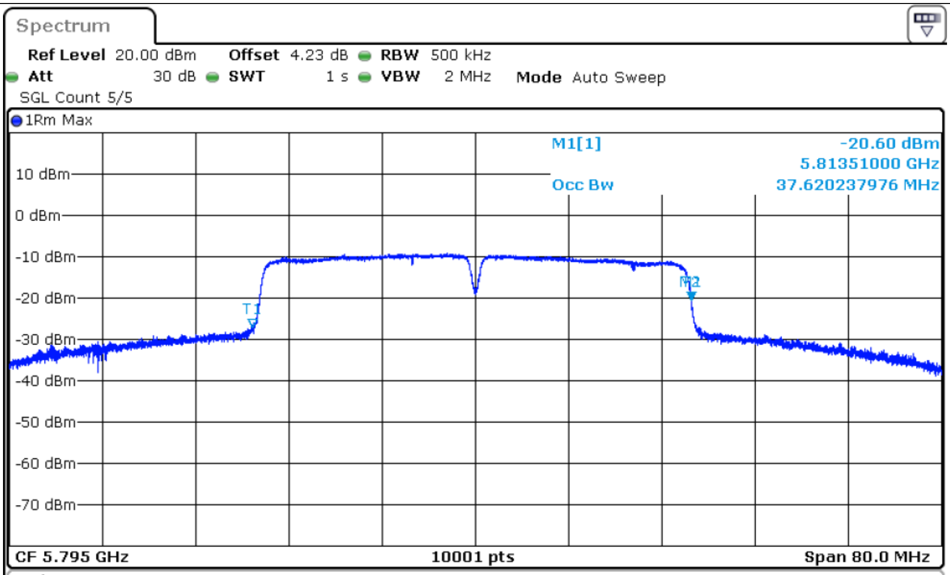
OBW NVNT ac20 5825MHz Ant1



OBW NVNT ac40 5755MHz Ant1



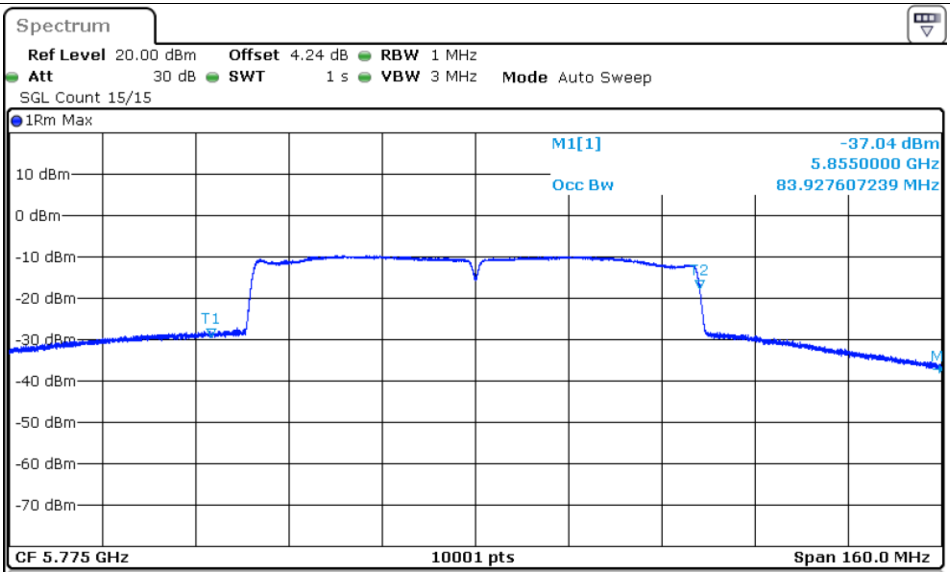
OBW NVNT ac40 5795MHz Ant1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.81351 GHz	-20.60 dBm		
T1		1	5.77588991 GHz	-27.17 dBm	Occ Bw	37.620237976 MHz
T2		1	5.81351015 GHz	-20.60 dBm		

OBW NVNT ac80 5775MHz Ant1



Marker

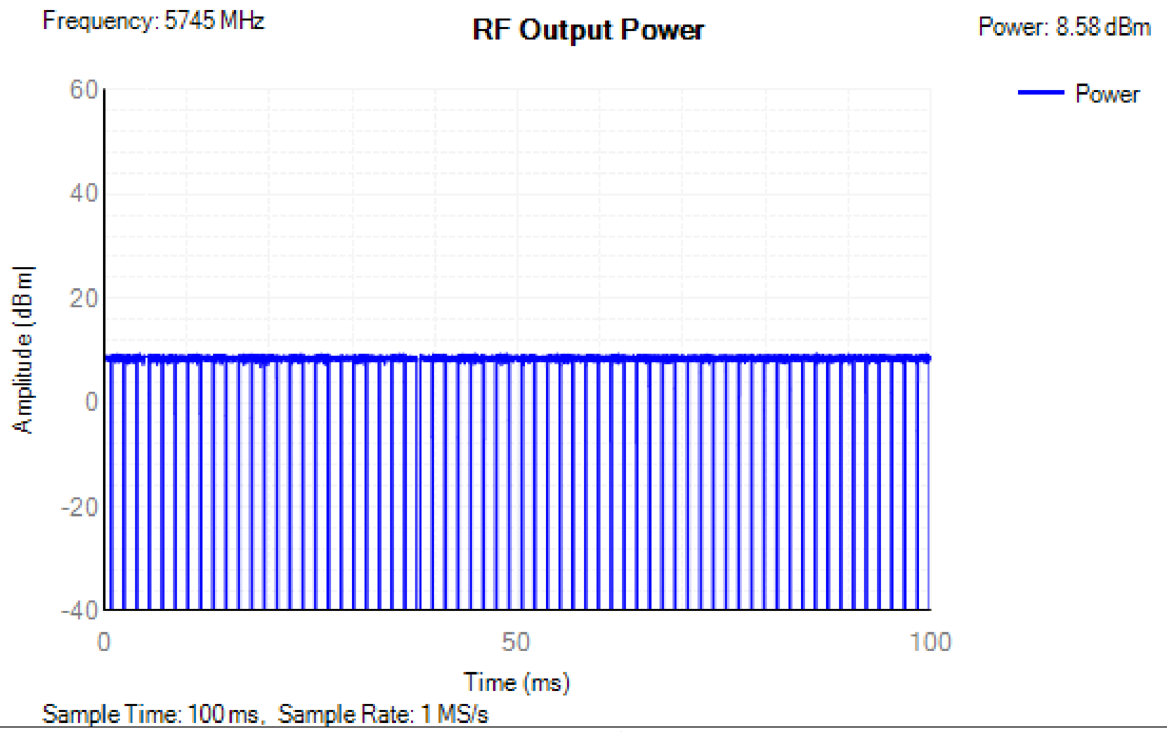
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.855 GHz	-37.04 dBm		
T1		1	5.7295645 GHz	-29.31 dBm	Occ Bw	83.927607239 MHz
T2		1	5.8134922 GHz	-17.65 dBm		

10.5 RF Output Power

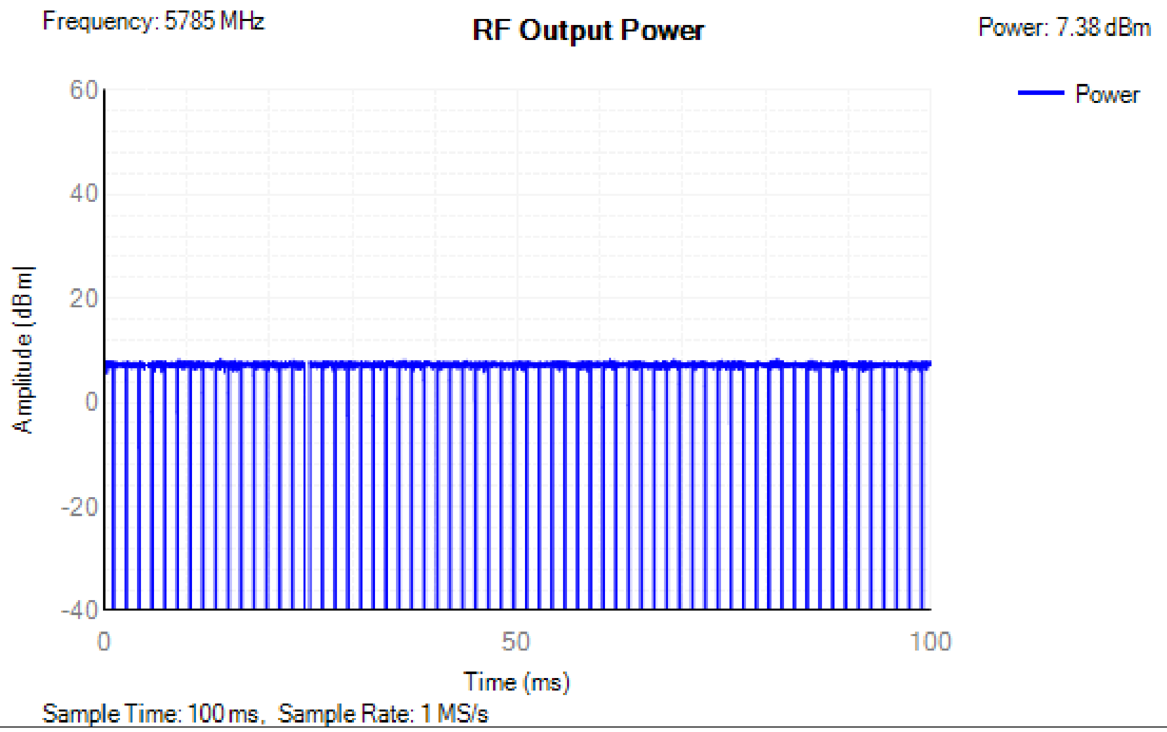
Condition	Mode	Frequency (MHz)	Antenna	Max Burst RMS Power (dBm)	Burst Number	Max EIRP (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	8.58	65	10.09	13.98	Pass
NVNT	a	5785	Ant1	7.38	65	8.89	13.98	Pass
NVNT	a	5825	Ant1	7.06	66	8.57	13.98	Pass
NVNT	n20	5745	Ant1	9.03	76	10.54	13.98	Pass
NVNT	n20	5785	Ant1	8.11	76	9.62	13.98	Pass
NVNT	n20	5825	Ant1	7.15	77	8.66	13.98	Pass
NVNT	n40	5755	Ant1	9.35	137	10.86	13.98	Pass
NVNT	n40	5795	Ant1	7.78	137	9.29	13.98	Pass
NVNT	ac20	5745	Ant1	8.6	75	10.11	13.98	Pass
NVNT	ac20	5785	Ant1	7.82	76	9.33	13.98	Pass
NVNT	ac20	5825	Ant1	6.84	76	8.35	13.98	Pass
NVNT	ac40	5755	Ant1	9.1	136	10.61	13.98	Pass
NVNT	ac40	5795	Ant1	7.79	135	9.3	13.98	Pass
NVNT	ac80	5775	Ant1	8.58	228	10.09	13.98	Pass
HVLT	a	5745	Ant1	8.47	71	9.98	13.98	Pass
HVLT	a	5785	Ant1	8.50	71	10.01	13.98	Pass
HVLT	a	5825	Ant1	8.47	71	9.98	13.98	Pass
HVLT	n20	5745	Ant1	8.42	75	9.93	13.98	Pass
HVLT	n20	5785	Ant1	8.37	76	9.88	13.98	Pass
HVLT	n20	5825	Ant1	8.40	76	9.91	13.98	Pass
HVLT	n40	5755	Ant1	8.37	148	9.88	13.98	Pass
HVLT	n40	5795	Ant1	8.32	148	9.83	13.98	Pass
HVLT	ac20	5745	Ant1	8.29	76	9.8	13.98	Pass
HVLT	ac20	5785	Ant1	8.24	75	9.75	13.98	Pass
HVLT	ac20	5825	Ant1	8.21	76	9.72	13.98	Pass
HVLT	ac40	5755	Ant1	8.16	146	9.67	13.98	Pass
HVLT	ac40	5795	Ant1	8.13	147	9.64	13.98	Pass
HVLT	ac80	5775	Ant1	8.10	280	9.61	13.98	Pass
LVHT	a	5745	Ant1	7.99	71	9.5	13.98	Pass
LVHT	a	5785	Ant1	8.02	71	9.53	13.98	Pass
LVHT	a	5825	Ant1	7.99	71	9.5	13.98	Pass
LVHT	n20	5745	Ant1	7.94	75	9.45	13.98	Pass
LVHT	n20	5785	Ant1	7.92	76	9.43	13.98	Pass
LVHT	n20	5825	Ant1	7.95	76	9.46	13.98	Pass
LVHT	n40	5755	Ant1	7.92	148	9.43	13.98	Pass
LVHT	n40	5795	Ant1	7.87	148	9.38	13.98	Pass
LVHT	ac20	5745	Ant1	7.84	76	9.35	13.98	Pass
LVHT	ac20	5785	Ant1	7.79	75	9.3	13.98	Pass
LVHT	ac20	5825	Ant1	7.76	76	9.27	13.98	Pass
LVHT	ac40	5755	Ant1	7.71	146	9.22	13.98	Pass
LVHT	ac40	5795	Ant1	7.68	147	9.19	13.98	Pass
LVHT	ac80	5775	Ant1	7.65	280	9.16	13.98	Pass
HVHT	a	5745	Ant1	7.54	71	9.05	13.98	Pass
HVHT	a	5785	Ant1	7.57	71	9.08	13.98	Pass
HVHT	a	5825	Ant1	7.54	71	9.05	13.98	Pass
HVHT	n20	5745	Ant1	7.49	75	9	13.98	Pass
HVHT	n20	5785	Ant1	7.47	76	8.98	13.98	Pass
HVHT	n20	5825	Ant1	7.50	76	9.01	13.98	Pass
HVHT	n40	5755	Ant1	7.47	148	8.98	13.98	Pass
HVHT	n40	5795	Ant1	7.42	148	8.93	13.98	Pass
HVHT	ac20	5745	Ant1	7.39	76	8.9	13.98	Pass
HVHT	ac20	5785	Ant1	7.34	75	8.85	13.98	Pass
HVHT	ac20	5825	Ant1	7.31	76	8.82	13.98	Pass
HVHT	ac40	5755	Ant1	7.26	146	8.77	13.98	Pass

HVHT	ac40	5795	Ant1	7.23	147	8.74	13.98	Pass
HVHT	ac80	5775	Ant1	7.20	280	8.71	13.98	Pass
LVLT	a	5745	Ant1	7.09	71	8.6	13.98	Pass
LVHT	a	5785	Ant1	7.12	71	8.63	13.98	Pass
LVHT	a	5825	Ant1	7.09	71	8.6	13.98	Pass
LVHT	n20	5745	Ant1	7.04	75	8.55	13.98	Pass
LVHT	n20	5785	Ant1	7.03	76	8.54	13.98	Pass
LVHT	n20	5825	Ant1	7.06	76	8.57	13.98	Pass
LVHT	n40	5755	Ant1	7.03	148	8.54	13.98	Pass
LVHT	n40	5795	Ant1	6.98	148	8.49	13.98	Pass
LVHT	ac20	5745	Ant1	6.95	76	8.46	13.98	Pass
LVHT	ac20	5785	Ant1	6.90	75	8.41	13.98	Pass
LVHT	ac20	5825	Ant1	6.87	76	8.38	13.98	Pass
LVHT	ac40	5755	Ant1	6.82	146	8.33	13.98	Pass
LVHT	ac40	5795	Ant1	6.79	147	8.3	13.98	Pass
LVHT	ac80	5775	Ant1	6.78	280	8.29	13.98	Pass

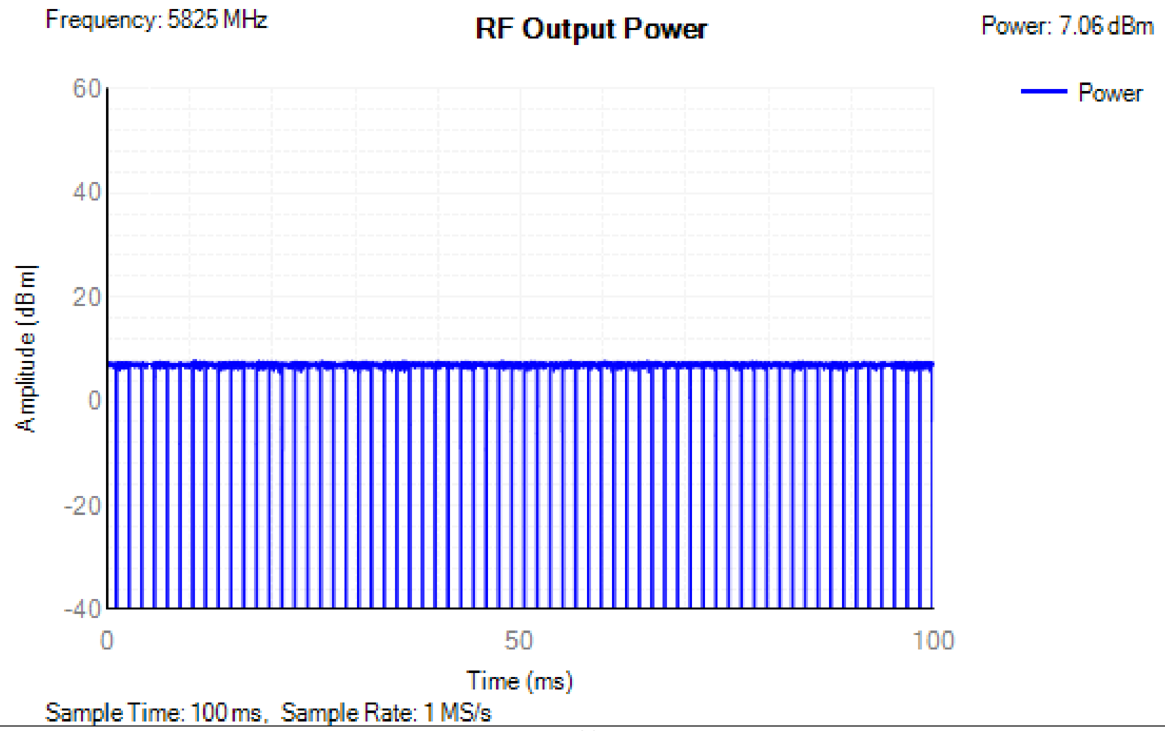
Test Graphs
Power NVNT a 5745MHz Ant1



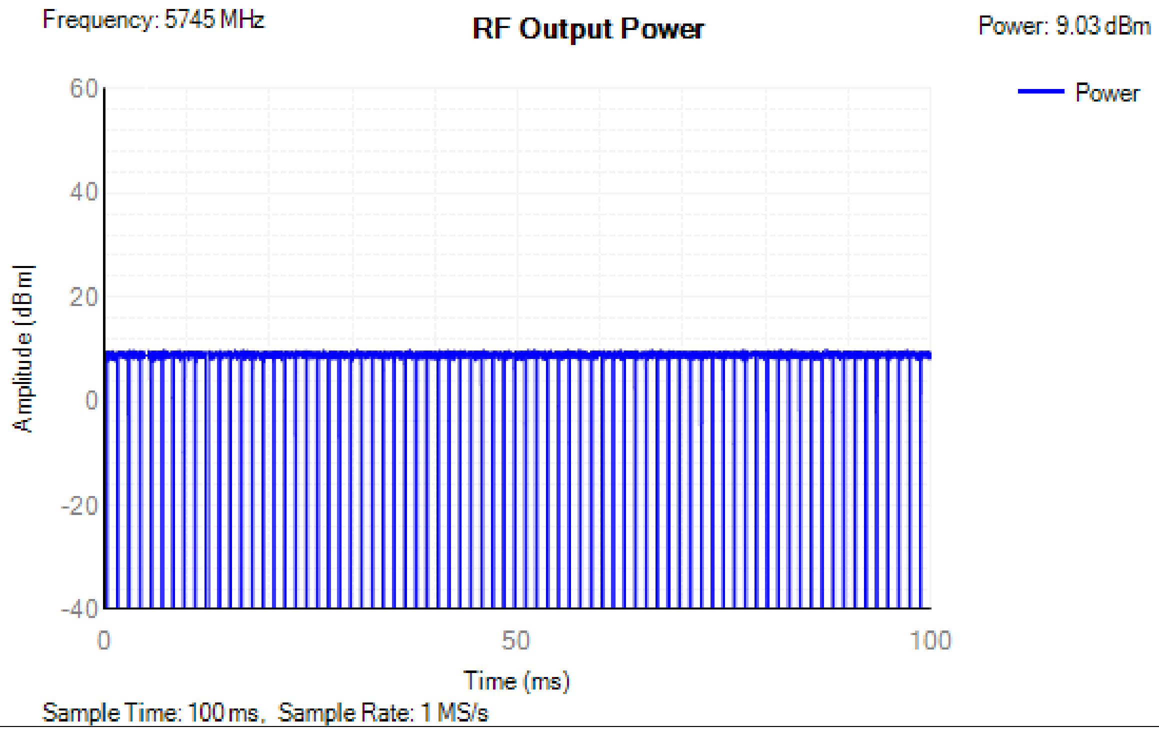
Power NVNT a 5785MHz Ant1



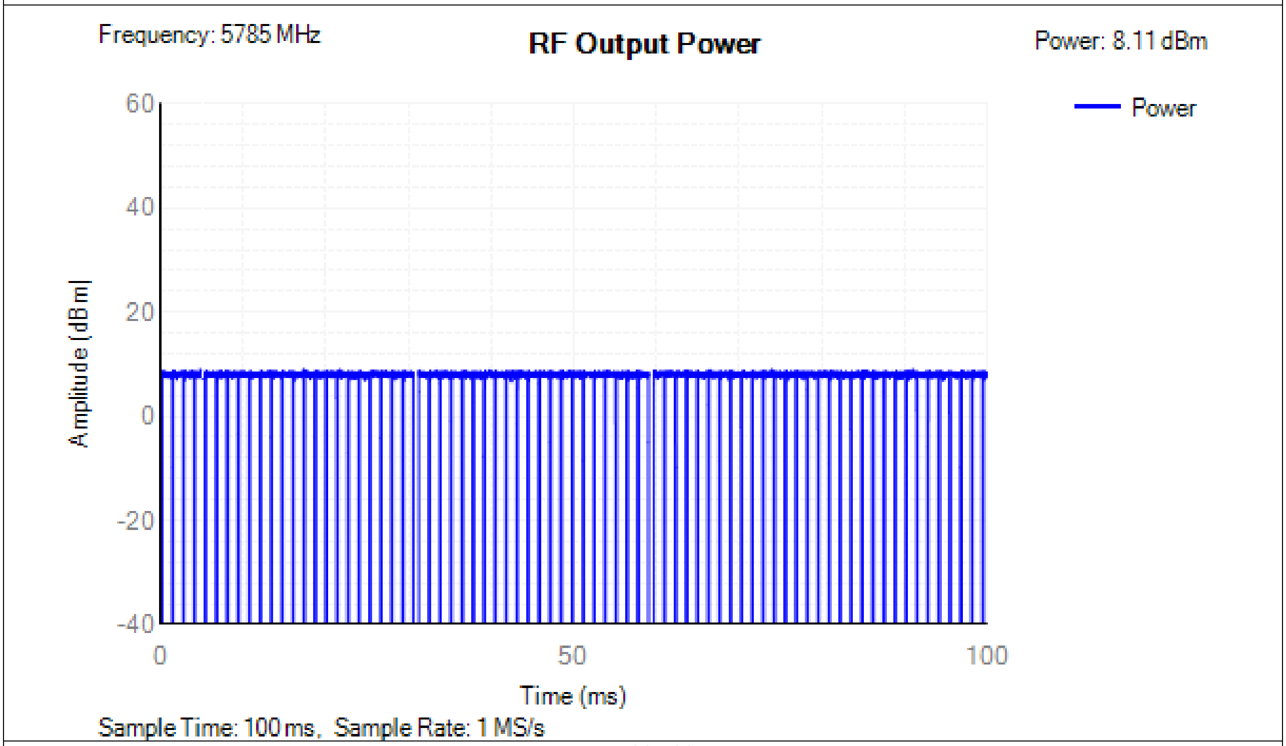
Power NVNT a 5825MHz Ant1



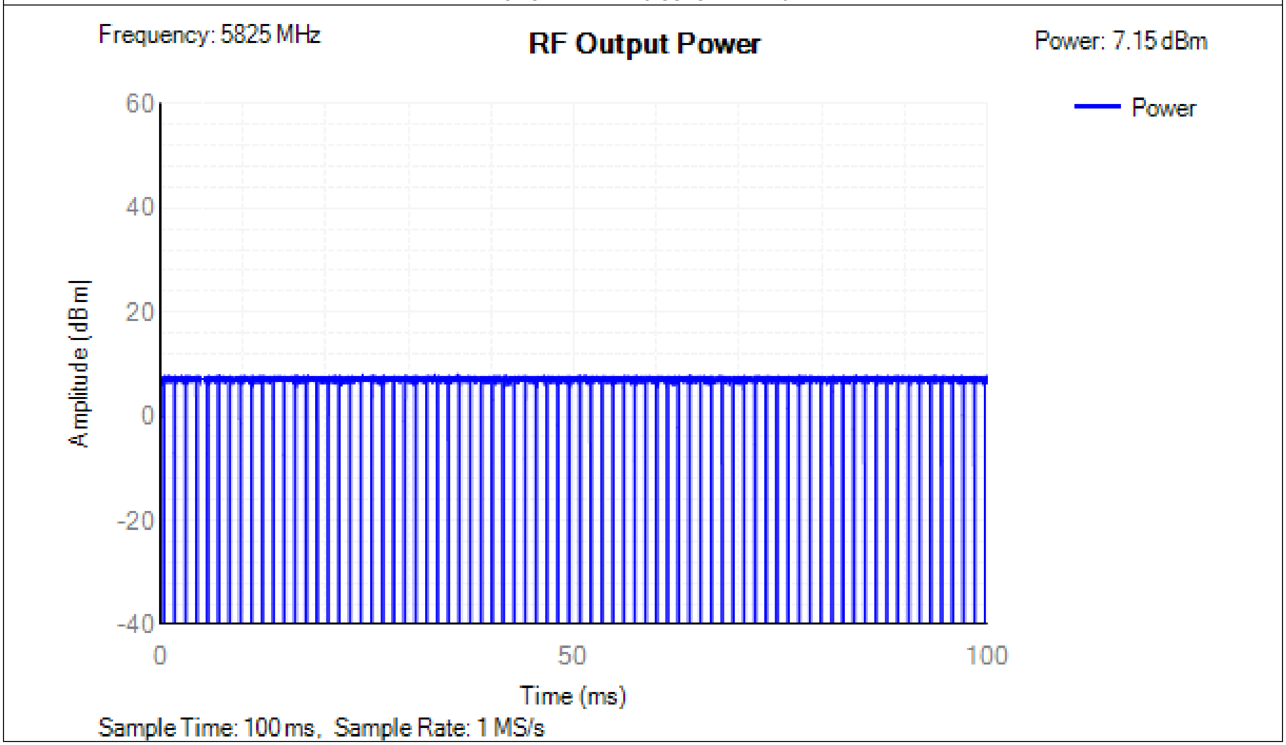
Power NVNT n20 5745MHz Ant1



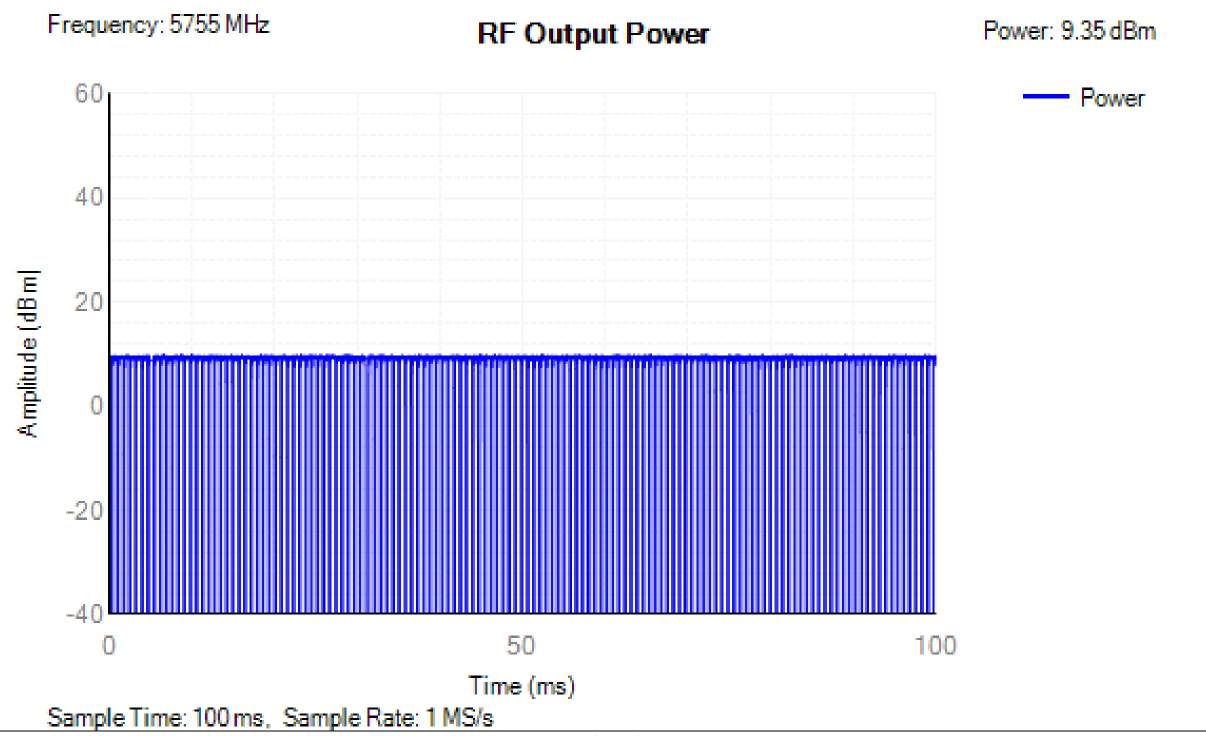
Power NVNT n20 5785MHz Ant1



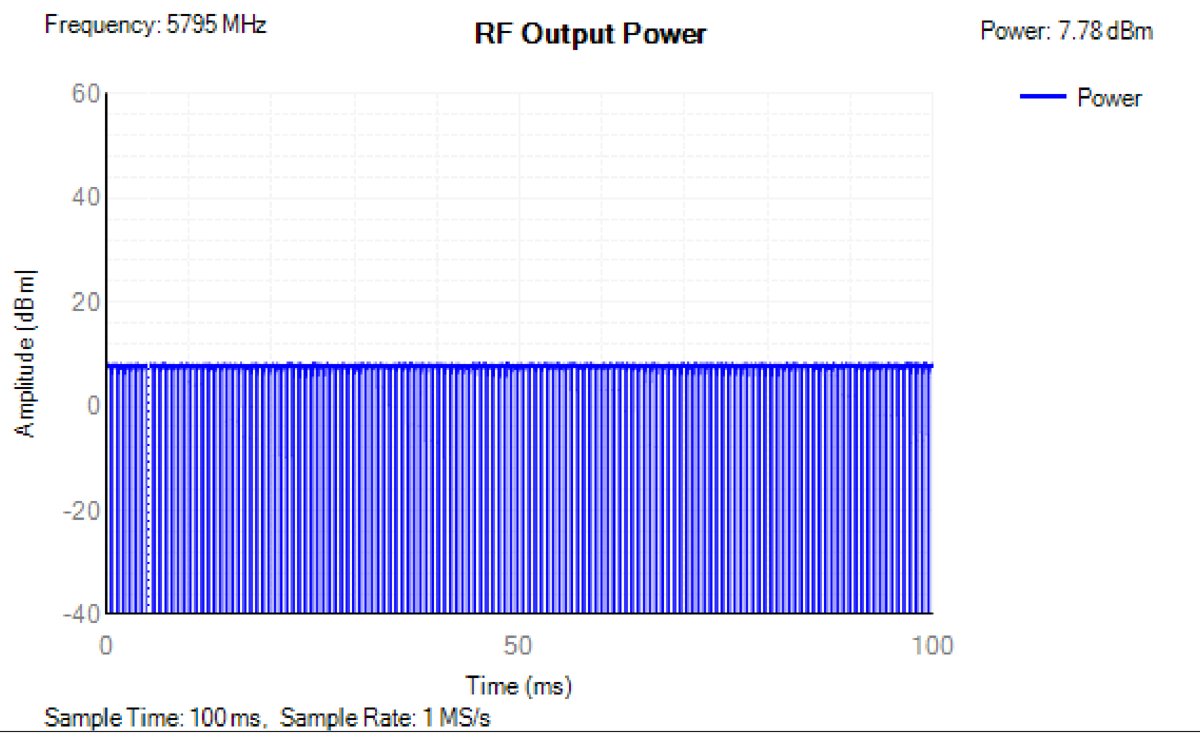
Power NVNT n20 5825MHz Ant1



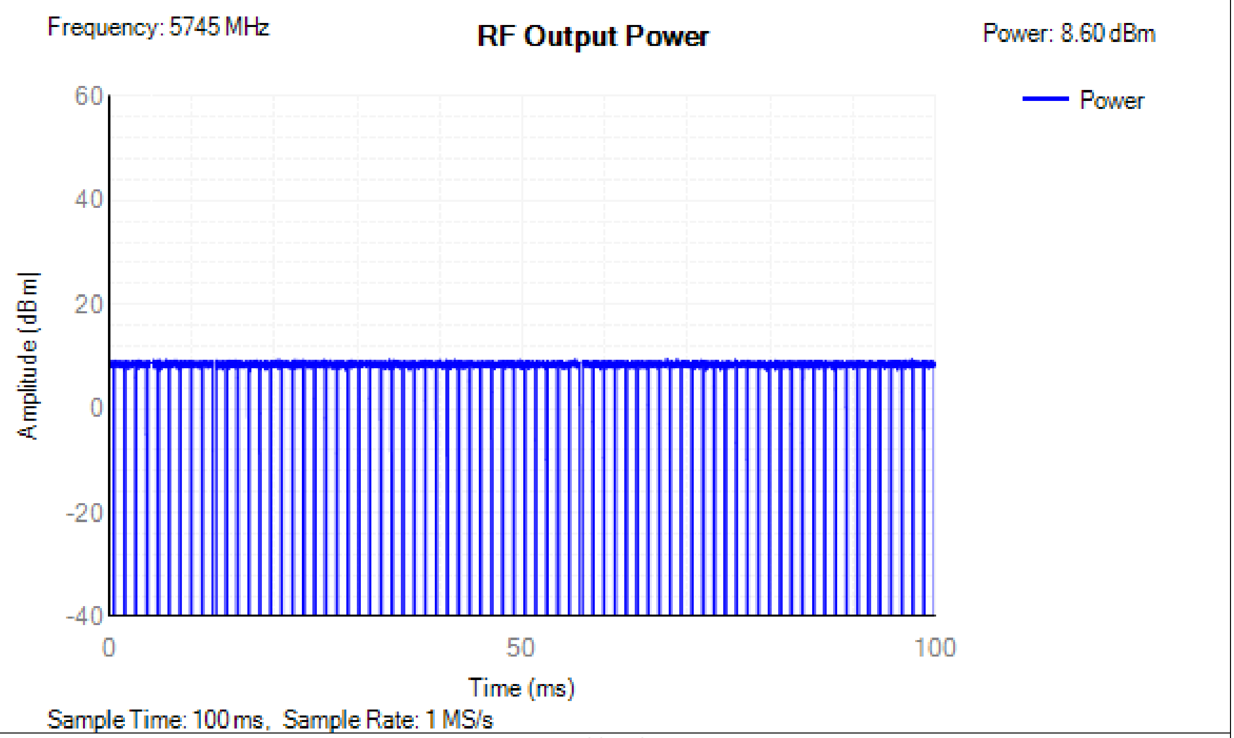
Power NVNT n40 5755MHz Ant1



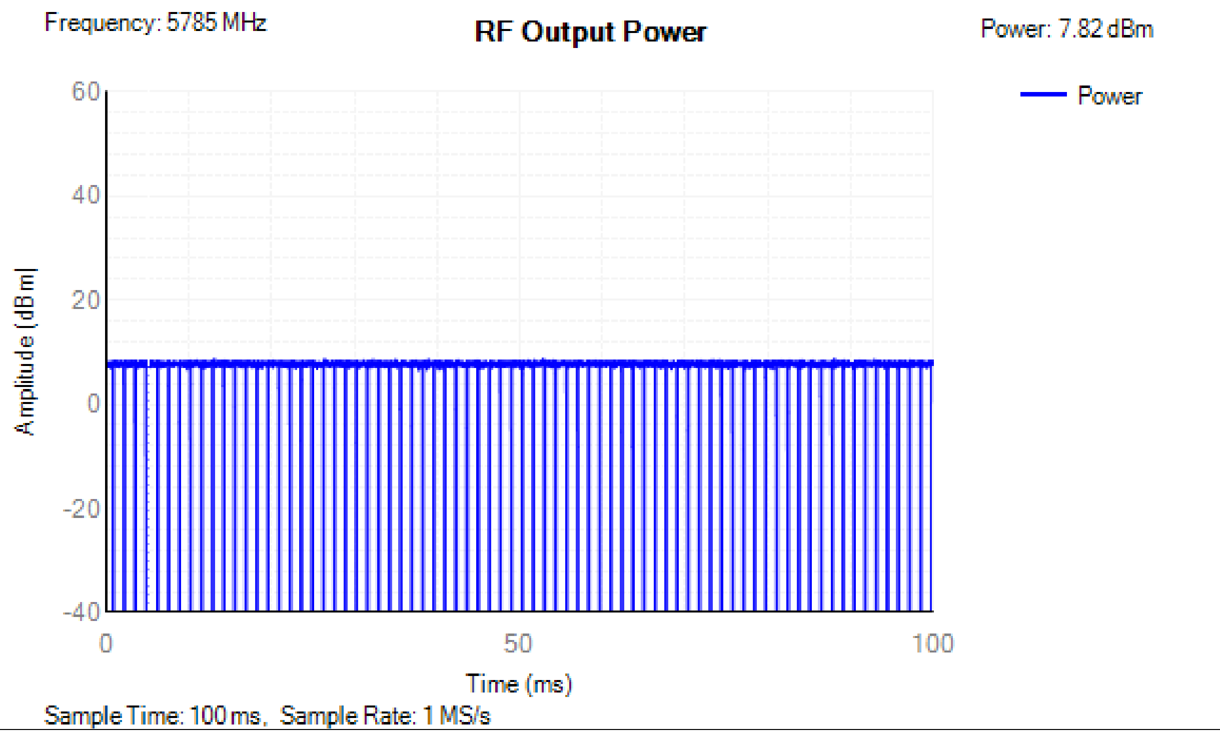
Power NVNT n40 5795MHz Ant1



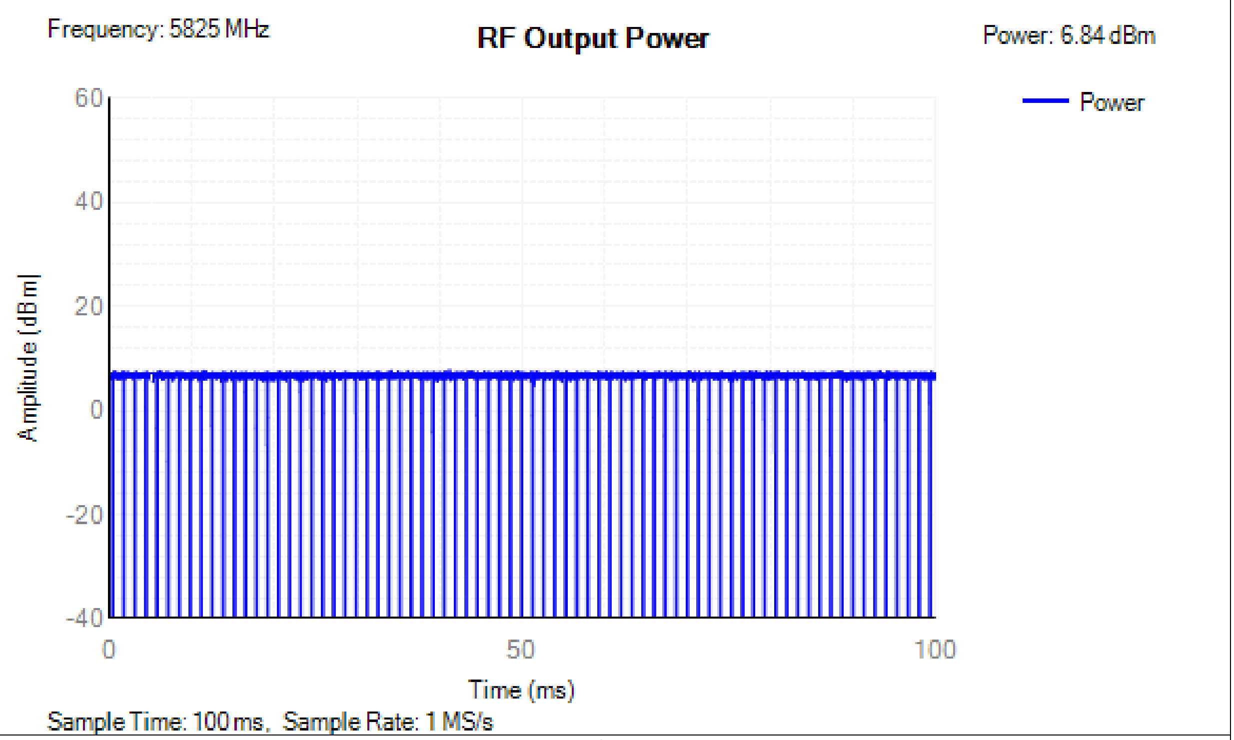
Power NVNT ac20 5745MHz Ant1



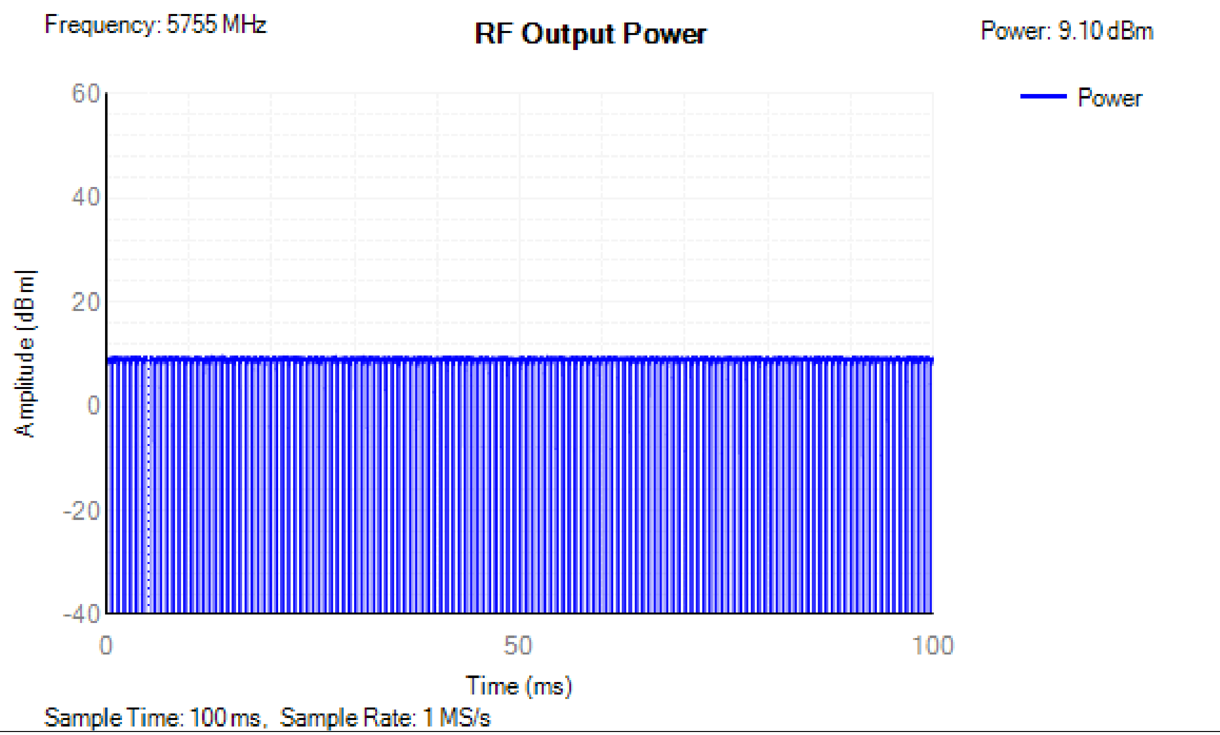
Power NVNT ac20 5785MHz Ant1



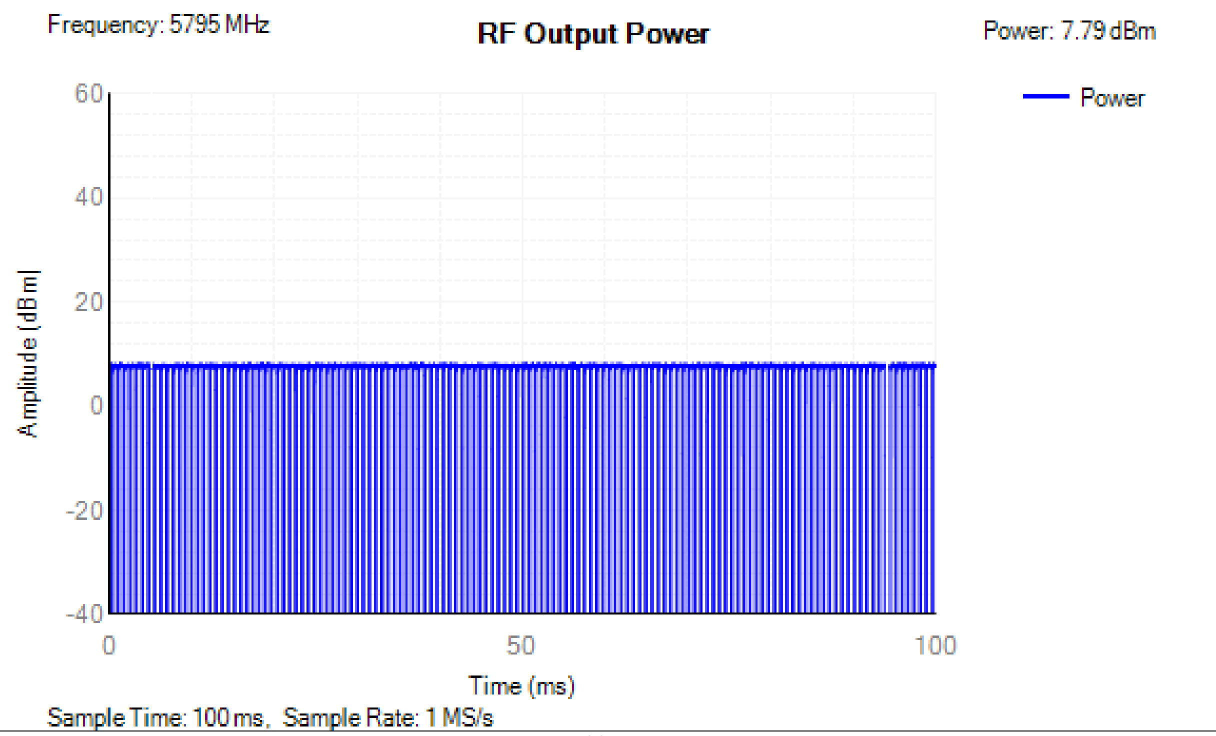
Power NVNT ac20 5825MHz Ant1



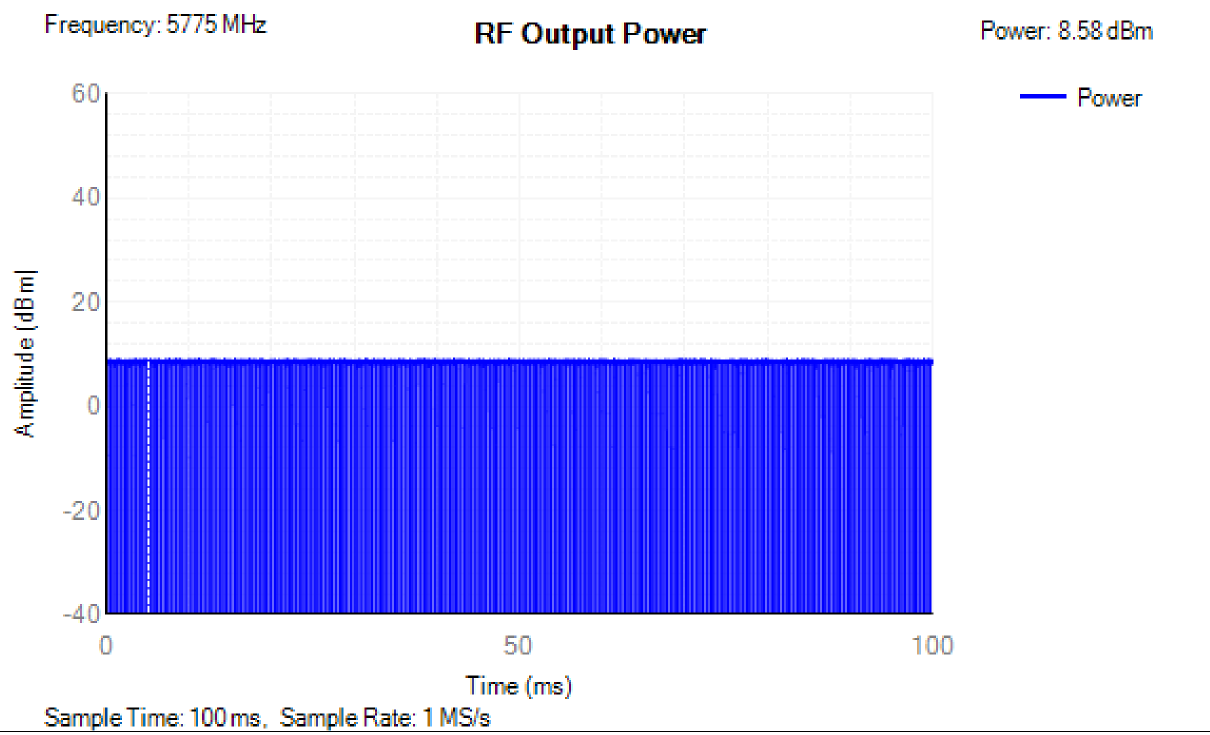
Power NVNT ac40 5755MHz Ant1



Power NVNT ac40 5795MHz Ant1

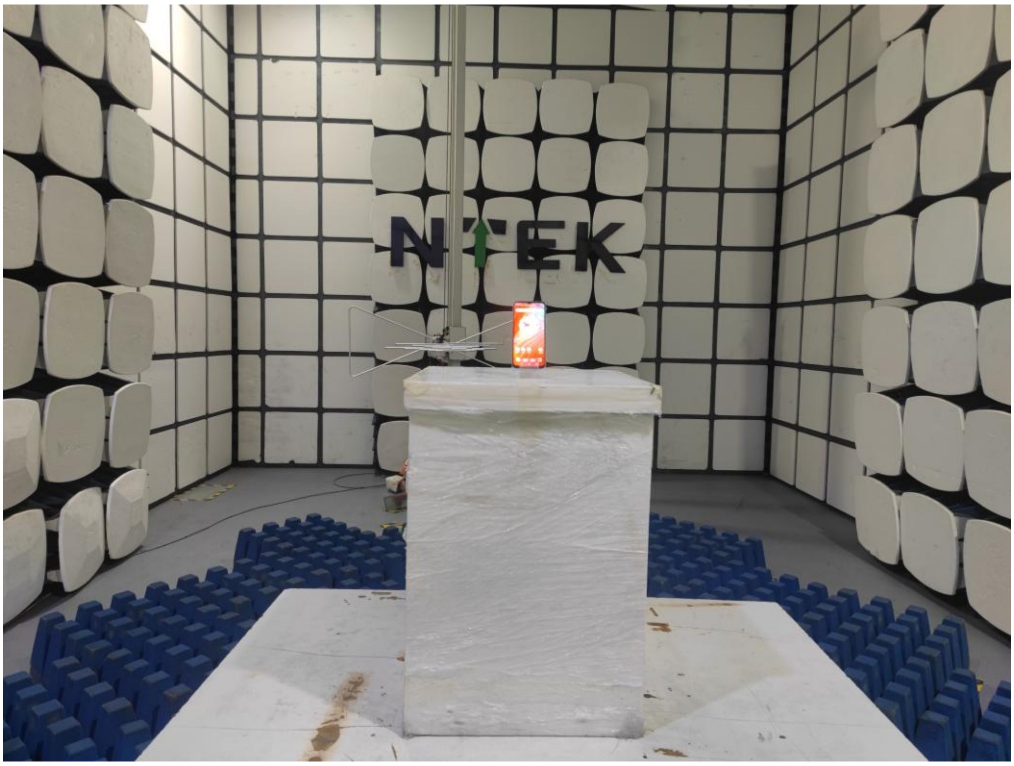


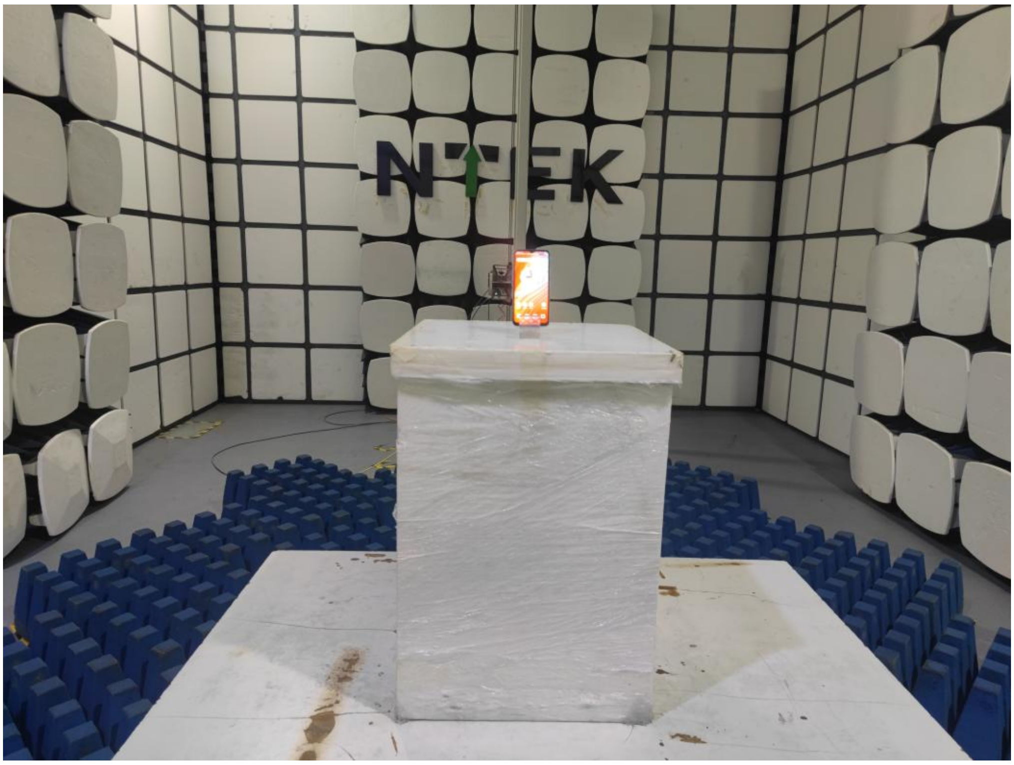
Power NVNT ac80 5775MHz Ant1



11. EUT TEST PHOTO

SPURIOUS EMISSIONS MEASUREMENT PHOTOS





END OF REPORT